THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON *Telephones*—GERRARD 4314 & 4315 *Offices*—423, Strand, London, W.C.2

No. XVI. OF VOL. II., 1923. **No. 5225. Vol. CCV.** LONDON, SATURDAY, OCTOBER 20, 1923. Founded 1823. Registered as a Newspaper. Published Weekly. **Pp. 112—Price 1s.** Annual Subscription Inland £2 2s. Abroad £2 10s

NEW BOOK.

PROTISTS AND DISEASE

By J. JACKSON CLARKE, M.B. Lond., F.R.C.S.

225 pages; 61 illustrations. Price 15s. (Postage, 6d.)

"The work deserves to be widely read, and the problems it suggests should be exhaustively studied."—JOURNAL OF PATHOLOGY, March, 1923.

London: Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden.

EARLY BOOKS OF SCIENTIFIC

IMPORTANCE ON MEDICINE AND NATURAL AND PHYSICAL SCIENCES.

(15th—18th Century.)

Including a number of earlier MSS.

Apply for Bulletin 9 (Just Published).

L'Art Ancien S.A., Dealers in Old Books, Lugano (Switzerland).

NOW READY. Demy 8vo. Pp. xii. + 196. With 50 Figs. Price 10s. 6d. net (postage 6d.).

DISEASES OF THE HEART:

A HANDBOOK FOR PRACTITIONERS AND STUDENTS

CONTAINING AN ACCOUNT OF CLINICAL ELECTROCARDIOGRAPHY.

By I. HARRIS, M.D., L.R.C.P.(Ed.), Hon. Physician in Charge, Cardiographic Department, Liverpool Northern Hospital.

Baillière, Tindall & Cox, 8, Henrietta St., Covent Garden, W.C.2.

SYPHILIS AND VENEREAL DISEASES.

By C. F. MARSHALL, M.Sc., M.D., F.R.C.S.Eng.; and E. G. FFRENCH, M.D., F.R.C.S. Edin., M.R.C.P. Lond., Lieut.-Col. R.A.M.C. (Ret.), late O.C. Military Hospital Rochester Row, S.W.

Fourth Edition, revised and illustrated with 7 Coloured Plates and numerous Figures. Price 15s.

London: Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden.

STERILITY IN WOMEN.

By ARTHUR E. GILES, M.D., B.Sc., Ch.B., F.R.C.S., M.R.C.P., Senior Surgeon to the Chelsea Hospital for Women, Gynæcologist to the Prince of Wales's General Hospital, Tottenham.

Demy 8vo. Cloth. 243 pages, Illustrated. Price 10s. net.

"For the General Practitioner this is an ideal book, full of information."—MEDICAL WORLD.

"The best that has been written on the subject."—BRIT. MED. JR.

Henry Frowde, Hodder & Stoughton, 1, Bedford-st., London, W.C.2.

BY THE SAME AUTHOR.

DISEASES OF WOMEN (with Sir JOHN BLAND-SUTTON). 7th Ed. William Heinemann.

GYNÆCOLOGICAL DIAGNOSIS } Baillière,
AFTER RESULTS OF ABDOMINAL OPERATIONS } Tindall & Cox

J. & A. CHURCHILL'S NEW BOOKS.

OPHTHALMOSCOPY & SKIASCOPY. G. F. ALEXANDER. 30 Ills. 5s. n.
CHEMISTRY. A. G. BLOXAM & S. JUDD LEWIS. 11th Ed. 36s. net.
DISEASES OF NOSE & THROAT. C. G. COAKLEY. 6th Ed. 18s. net.
SURGICAL NURSING. H. C. R. DARLING. 2nd Ed. 8s. 6d. net.
ENDOCRINE DISEASES. W. FALTA. 3rd Ed. 36s. net.
THE OPHTHALMOSCOPE. A. F. FERGUS. 17 Illus. 3s. 6d. net.
PRACTICAL MIDWIFERY. GIBBON FITZGIBBON. 175 Illus. 16s. net.
PREMATURE & CONGEN. DISEASE INFANTS. J. H. HESS. 18s. n.
HEALTHY WEDDED LIFE. G. T. WRENCH. 3rd Ed. 6s. net.

London: J. & A. Churchill, 7, Great Marlborough-street, W.1.

BY W. SOLTAU FENWICK, M.D.

DYSPEPSIA: Its Varieties and Treatment.
(New Edition Shortly)
W. B. Saunders, Ltd., 9, Henrietta-street, W.C.2.

CANCER AND TUMOURS OF THE STOMACH.
362 pages. 10s. 6d.

ULCER OF THE STOMACH AND DUODENUM.
392 pages. 10s. 6d.
J. & A. Churchill, 7, Great Marlborough-street, W.1.

DR. MARIE STOPES' GREAT NEW WORK. NOW READY.

CONTRACEPTION

(BIRTH CONTROL).

ITS THEORY, HISTORY, AND PRACTICE.

A MANUAL FOR THE MEDICAL AND LEGAL PROFESSIONS.

By MARIE CARMICHAEL STOPES, D.Sc., Ph.D., Fellow of University College, London; Author of "Married Love," &c., &c.

With an Introduction by Sir WILLIAM BAYLISS, M.A., D.Sc. Oxon., F.R.S., Professor of General Physiology, University College, London. And Introductory Notes by Sir JAMES BARR, C.B.E., M.D., LL.D., F.R.C.P. Lond., CHRISTOPHER ROLLESTON, M.A., M.D. Oxon., M.R.C.P.Lond., JANE HAWTHORNE, M.B., Ch.B. Glasg. and OBSCURUS.

Demy 8vo. Cloth. Pp. xxiv. + 416. With 4 full-page plates. 12s. 6d. net; postage inland 9d.

Should be read by all members of the Clerical and Scholastic Professions.

London: John Bale, Sons & Danielsson, Limited, 83-91, Great Titchfield-street, Oxford-street, W.1.

Just Issued. **Foster's Examination of Patients** *Just Issued.*

The one aim of Dr. Foster in writing his book was to present methods of determining facts upon which accurate diagnosis rests. Without such facts and their correct interpretation the most brilliant discoveries in therapeutics or the most skilful surgery avail nothing. The development of laboratory methods has somewhat directed attention away from the fundamentals of sound diagnostic practice—trained senses of touch, sight and hearing. Dr. Foster's book reverts sharply to these fundamentals.

By NELLIS B. FOSTER, M.D., Associate Professor of Medicine, Cornell University College of Medicine. Octavo of 253 pages, with 70 illustrations, a number in colours. Cloth, 18s. net.

W. B. Saunders Company, Ltd., 9, *Henrietta Street, London, W.C.2.*

ATOPHAN

Schering

The sovereign remedy for GOUT, RHEUMATISM, NEURALGIA.

Schering

VERAMON

Schering

The new analgesic of increased efficacy.

Chemische Fabrik auf Actien (vorm. E. SCHERING) Berlin.

Obtainable from all Wholesale and Retail Chemists and Druggists and Druggists' Sundries Houses.

FOR LITERATURE AND SAMPLES APPLY TO—

A. & M. ZIMMERMANN, Ltd., Lloyds Avenue, London, E.C. 3.

USE LESLIES' ZŌPLA (ZINC OXIDE PLASTER)

A PERFECT STRAPPING

ZŌPLA is tenaciously Self-adhesive, will not slip, will stand any strain imposed on it, is Antiseptic, and is absolutely Non-irritating. The Sale is steadily growing. British Made.

Supplied on White and Flesh-colour Cloths, also on Holland on Spools ½" to 4", 5 or 10 yard lengths, in rolls 7" and 12" wide. Also on moleskin, chamois leather, felts, and waterproof cloth. **SAMPLES ON REQUEST.**

ZŌPLA is made by the firm with the reputation for BROWN HOLLAND STRAPPING (Original make).

[Telephone—Walthamstow 686

LESLIES LTD., High Street, Walthamstow, LONDON, E.17

VALENTINE'S
PREPARATION
NUTRIO PRIME
MEAT JUICE.
The result of an original Process of Preparing Meat, and extracting its Juice by which the elements of nutrition are obtained in a state, ready for immediate absorption.
DIRECTIONS.-Dissolve one teaspoonful of the Preparation in two or three tablespoonfuls of cold or warm water. The use of boiling water changes the character of the preparation.

Valentine's Meat-Juice

For **Quieting** the **Irritable Stomach**, for **Aiding** the **Digestion** and for **Sustaining** and **Strengthening. Valentine's Meat-Juice** is **Extensively Employed** in the treatment of

Phthisis.

Dr. Gouel, *Physician in Chief of the Villepinte Hospital for Consumption, Paris, France:* "VALENTINE'S MEAT-JUICE succeeds well in cases of Anæmia and in the treatment of Tuberculosis in an advanced stage when the stomach is intolerant."

Dr. Pietro Borromeo, *Physician and Surgeon of the Hospital of Rome, Italy:* "I have tried VALENTINE'S MEAT-JUICE in the Tuberculosis Division of the Hospital of the Holy Spirit, and have proved the great advantages that it renders for the nutrition of the consumptive. Pleasant to the taste of the most fastidious of the sick, it does not irritate the stomach; but stimulates the peptogastric functions so as to improve notably the appetite, even in cases of continuous and high fever and extreme loss of strength."

For Sale by European and American Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY,

RICHMOND, VIRGINIA, U.S.A.

D 156

THE LANCET

No. 5225. LONDON, SATURDAY, OCTOBER 20, 1923. Vol. CCV.

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

THE HARVEIAN ORATION

on the Wisdom of the Body. By Prof. ERNEST H. STARLING, C.M.G., M.D., Sc.D., F.R.S..... 865

ORIGINAL ARTICLES.

The Early Treatment of Mental Disorder: A Critical Survey of Out-patient Clinics. By J. G. PORTER PHILLIPS, M.D., F.R.C.P. 871

A Note on Acute *Bacillus coli* Infection of the Gastro-intestinal Tract in the New-born Child Contracted from its Mother. By R. CHALMERS, M.D., F.R.C.S..... 874

The Treatment of [illegible] Based on a New T[illegible]ry of Causation. By H. HAROLD SCOTT, M.D., M.R.C.P., D.P.H., F.R.S. 876

Congenital Dislocation of the Hip: A New Apparatus. By JOHN GILMOUR, M.S., F.R.C.S. —(*Illustrated*) 879

High Blood Pressure. By E. M. BROCKBANK, M.D., F.R.C.P. 880

Village Settlements for the Consumptive: Some Economic Considerations of "Training." By P. C. VARRIER-JONES, M.R.C.S., L.R.C.P., and Sir CLIFFORD ALLBUTT, P.C., K.C.B., M.D. 912

MEDICAL SOCIETIES.

Manchester Medical Society: High Blood Pressure: Discussion... 883

Royal Society of Medicine: Section of Therapeutics and Pharmacology: Use of Insulin in General Practice 885

London Association of the Medical Women's Federation: President's Address 886

REVIEWS AND NOTICES OF BOOKS.

Reconstructive Surgery of the Upper Extremity. By Prof. Arthur Steindler, M.D., F.A.C.S. 888

Gastro-Enteroptosis. By Robert C. Coffey, M.D., F.A.C.S. 888

Traumatic Shock. By Prof. Walter B. Cannon, A.M., M.D. 888

Surgery of the Spleen. By Prof. Eugene H. Pool, M.D., and Ralph G. Stillman, M.D. 888

The Transplantation of Tissues. By Harold Neuhof, M.D. 889

Practical Local Anæsthesia. By Robert Emmett Farr, M.D. 889

The Art of Anæsthesia. By P. J. Flagg, M.D..... 889

Elements of Pharmacy, Materia Medica, and Therapeutics. By Sir William Whitla, M.P., M.D., D.Sc..... 890

The Designing, Constructing, and Maintaining of Sewerage Systems and Sewage Treatment Plans. By A. Prescott Folwell.. 890

Journal of Pathology and Bacteriology 890

Indian Journal of Medical Research 890

LEADING ARTICLES.

MEDICAL BENEFIT UNDER THE NATIONAL INSURANCE ACT 891

VITAMINS, INFECTION AND BODY TEMPERATURE... 892

ECONOMICAL PRESCRIBING ABROAD AND AT HOME. 892

ANNOTATIONS.

Medical History of the War 893

The Blood in Small-pox... 893

Medical Research in Japan 894

On the Pathogenesis of Deficiency Disease 894

X Ray Diagnosis of Pregnancy: Its Medico-Legal Value 894

Monographs in Sets..... 895

The Problem of Idiosyncrasies to Mydriatics... 895

Meningitis Due to Worms. 895

Syphilis of the Orbit..... 896

MODERN TECHNIQUE IN TREATMENT.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XLI.—Treatment of Retention of Urine. By J. SWIFT JOLY, F.R.C.S. 896

SPECIAL ARTICLES.

The Remuneration of Insurance Practitioners: Insurance Practice; Conference at the Ministry of Health.—Labour Proposals 898

Tuberculosis: Trudeau Sanatorium.—Yorkshire Tuberculosis Society ... 899

The London Medical Exhibition: Surgical Instruments.—Milk and Milk Foods. — Spas. — Publishers 900

Ireland: National Health Insurance Commission and Medical Certification.—Royal Academy of Medicine in Ireland.. 902

THE SERVICES.

Royal Naval Medical Service. — Royal Army Medical Corps. — Royal Air Force. — Indian Medical Service..... 904

CORRESPONDENCE.

Centenary of THE LANCET: Congratulatory Messages (Sir John W. Moore, Sir Harold J. Stiles) 905

Double School Vaccination (Dr. S. Nicol Galbraith) 905

Congenital Miosis (Dr. S. Holth) 906

The Diathermy Treatment of Gonorrhœa in Women (Dr. C. A. Robinson) ... 906

An Unidentified Portrait Bust (Mr. A. E. Webb-Johnson)—(*Illustrated*) . 907

Heartburn 907

Intestinal Disinfection (Mr. J. T. Ainslie Walker) .. 907

PUBLIC HEALTH SERVICES.

Reports of Medical Officers of Health: Glasgow.—Bradford.—South Shields.—Paisley 902

OBITUARY.

Sir William Rice Edwards, K.C.B., K.C.I.E., C.M.G., M.D. 908

Michael Thomas Sadler, M.D. 908

MEDICAL NEWS.

University of Oxford 908

University of Cambridge.. 908

University of London 908

University of Bristol 908

University of Glasgow ... 908

Roy. Fac. Phys. and Surg. Glasg..... 909

University of St. Andrews. 909

University of Manchester . 909

West Kent Medico-Chirurgical Society 887

Cancer Congress in Brussels 887

Demonstrations of Clean Milk Production 900

United States Public Health Service 904

Tuberculosis Society 909

Hunterian Society 909

Scientific and Industrial Research 909

Evolution in Relation to Christian Principles 909

Chadwick Public Lectures 909

An International Clinic of Plastic Surgery 909

National Council for Combating Venereal Diseases 910

Conference of Cremation Authorities 910

Refugees in the Near East 910

The Journal of Scientific Instruments 910

The late Dr. J. R. S. Robertson 910

Medical Golfing Society... 910

Chelsea Clinical Society... 910

National Milk Conference 910

NOTES, COMMENTS, AND ABSTRACTS.

A Plea for a College of Entomology 914

A New Skin Game—(*Illustrated*) 914

A Double Acrostic 914

Appointments 910

Vacancies..... 910

Births, Marriages, Deaths. 911

Medical Diary 911

THE MOST UP-TO-DATE EPITOME OF THE CANCER PROBLEM.

CANCER:

THE INCREASING PLAGUE OF THE CENTURY.

By GEORGE BURFORD, M.B., C.M.,

Senior Consulting Physician for Diseases of Women to the London Homœopathic Hospital;
Fellow of the Royal Society of Medicine.

LONDON:

JOHN BALE, SONS & DANIELSSON, LTD., 83-91, Great Titchfield Street, Oxford Street, W.1.

HENRY J. GLAISHER, 55, Wigmore St., Cavendish Square, W.1.

THE HOMŒOPATHIC PUBLISHING COMPANY, 12, Warwick Lane, E.C.4.

Price **3s. 6d.** net, by post **3s. 9d.**

TWO NEW BOOKS NOW READY.

THE PRIMARY PROBLEMS OF MEDICAL PSYCHOLOGY. A Text-book for Students and Practitioners. By **Dr. CH. DE MONTET,** Professor of Psychology at the University of Lausanne. Translated under the supervision of the Author by A. NEWBOLD. Crown 8vo. **7s. 6d.** net, postage 6d.

"MAGISTRI SALERNITANI NONDUM COGNITI." A Contribution to the History of Diplomatics of the Medical School of Salerno. By **Dr. PIETRO CAPPARONI.** With a Foreword by Sir D'ARCY POWER, K.B.E., M.B.Oxon., F.R.C.S.Eng. With 27 Plates and a Coloured Frontispiece. Crown 4to. **15s.** net, postage 6d.

JOHN BALE, SONS & DANIELSSON, LTD., 83-91, Great Titchfield Street, London, W.1.

ELLIS'S MEDICAL BOOKSERVICE

FOR PROMPT SUPPLY AND DESPATCH OF

ALL LATEST MEDICAL PUBLICATIONS.

NEW 1923 CATALOGUE of current works in Medicine, Surgery and Allied Sciences (including notices of forthcoming publications) sent gratis and post free on application.

N.B.—A special edition, cloth bound and interleaved, can be supplied at a nominal charge of **2/-**

NEW BOOK SALOON AND READING ROOM—FIRST FLOOR.

Special Saloon for sale of slightly soiled ex-library copies at **greatly reduced prices** is now open upon the third floor.

(Lists of secondhand volumes cannot be sent as the stock is changing rapidly, but every effort will be made to reserve volumes selected.)

Address for all Communications:

H. R. ELLIS, Medical Bookseller, Telephone: City 8281. Telegrams: Nubooque, Cent. London. **9, Lovell's Court, Paternoster Row, London, E.C.4.**

THE OLD DOCTOR

By FRANK G. LAYTON, M.R.C.S., L.R.C.P.

This is a Chronicle of Doctoring in Back Streets, before, and since, the coming of the Insurance Act. It is intended for Doctors, who may be critical; for Sociologists, who should be interested; for the General Public, who will be amused.

Price 4s. 6d. net.

Birmingham: CORNISH BROTHERS, Ltd.
London: SIMPKIN MARSHALL & CO., Ltd.

THE PRIORY GATE SCHOOL

WALSHAM-LE-WILLOWS, SUFFOLK.

Modern Psychological knowledge has disproved the rest-cure theory and has shown that nervous, highly-strung children; children with night-fears and dreams; stammerers; children without appetites, &c., need a life full of interest away from their parents.

The Principal will welcome the coöperation of practitioners who will put parents in touch with him. Vacancies for Boys and Girls.

STAMMERING

W. J. KETLEY, "Tarrangower," Brondesbury, N.W.

30 years colleague of late B. BEASLEY, Brampton Park, Huntingdon.

Those interested in the subject should write for his book, which will be sent post free.

STAMMERING, SPEECH DEFECTS, VOICE TRAINING.

BEHNKE METHOD. Est. 1882.

Carried on by Miss BEHNKE, at 39, Earl's Court-square, S.W.5. Cases also received into residence, summer holidays, at Miss Behnke's house in the country. Early application necessary.

"Pre-eminent success in the education and treatment of stammering and other speech defects."—*The Times.*

"Thoroughly physiological principles."—*The Lancet.*

"The method is scientifically correct and perfectly effective."—*Guy's Hospital Gazette.*

From a Harley Street Specialist.—"The condition is to a great extent a psychical one, and the admirable results obtained by yourself and your parents have in my opinion been to a great extent due to your personal psychical influence over your subjects. You are at liberty to use this expression of my opinion." (*This letter may be seen.*)

"Stammering: Cleft Palate Speech: Lisping." 3s. 9d. post free.

Of Miss BEHNKE, 39, Earl's Court-square, S.W. 5.

Price 1s. With Illustrations.

APPLICATION OF TRUSSES

to HERNIÆ. Clinical Lecture delivered at King's College Hospital. By the late JOHN WOOD, F.R.S., Senior Surgeon to King's College Hospital. Reprinted from "Medical Examiner."

London: Matthews Brothers, 10, New Oxford Street, W.C.

STAMMERING

MOST SUCCESSFULLY TREATED.

RESIDENT AND DAILY PUPILS.

PROSPECTUS AND MEDICAL OPINIONS POST FREE FROM

Mr. A. C. SCHNELLE, [Tel.: Museum 3665

Estd. 1905] **119, Bedfrod Court Mansions, London, W.C.1.**

That Book you Want!

FOYLES have a large Department for Medical and Surgical Works. 1,000,000 vols. (Secondhand and New) on every conceivable subject in stock. Books sent on approval. Books not in stock obtained quickly. *Catalogue 479 free; mention requirements. Books Purchased.*

FOYLES, 121/5, Charing Cross Road, LONDON.

NOW READY. NEW & REVISED EDITION (7TH). **25/-** net. 1100 pages

WHITLA'S DICTIONARY OF TREATMENT.

Includes Medical, Surgical, Gynæcological, Obstetric, Cutaneous, Eye and Ear Therapeutics.

Also, JUST ISSUED. ELEVENTH EDITION. **10/6** net.

PHARMACY, MATERIA MEDICA & THERAPEUTICS.

A Commentary on the B.P. Drugs and New Remedies.

Bailliére, Tindall & Cox, 8, Henrietta-street, Covent Garden, W.C.2

SECOND-HAND MICROSCOPES, &c.

By all the Leading Makers.

CLARKSON'S, 338, High Holborn
LONDON, W.C. 1 (Opposite Gray's Inn Road).
Telephone: Holborn 2149.

BUY AN ERIKA FOR 5/- PER WEEK

TAYLOR'S FOR TYPEWRITERS

DESKS & TABLES **ADDING & CALCULATING MACHINES**

74, CHANCERY LANE, HOLBORN, LONDON.

THE ERIKA
The Best Portable Writer Complete in Travelling Case £14 14s.

HIRE BUY, EXCHANGE, REPAIR, AND **SELL**

VERY EASY HIRE PURCHASE.

All makes of Typewriters and Duplicators. Authors MSS. and Circular Letters typed by return of post.

Write Dept. 26. **Tel.: Holborn 4810.**
Temporary Typists Sent Out. *Estd. 1884.*

Scholl's Foot Eazer

gives instant relief to tired, aching feet. Made from selected materials on anatomical lines. Worn in usual shoes unobserved Men's and Women's sizes. Price per pair, 10/6.

Booklet "The Feet and Their Care," sent free on request.

THE SCHOLL MFG. CO., LTD
132, Giltspur Street, London, E.C.1.

DR. CHAUMIER'S GLYCERINATED AND REINFORCED CALF LYMPH

THE CHEAPEST AND MOST ACTIVE LYMPH.

PREPARED UNDER THE MOST MINUTE ANTISEPTIC PRECAUTIONS.

Supplied in Tubes, sufficient to vaccinate 1 or 2 persons, at 3d. each; 10 persons at 1s. 3d. each, 25 persons at 2s. 3d. each. Collapsible tubes for 40 vaccinations 3s. 9d. each. Postage and packing 2d. each extra.

ROBERTS & CO., 76, New Bond St., LONDON, W.

The Harveian Oration

ON

THE WISDOM OF THE BODY.

Delivered before the Royal College of Physicians of London on St. Luke's Day, 1923,

BY ERNEST H. STARLING, C.M.G., M.D. LOND., SC.D. (HON.) CAMB. AND DUB., M.D. (HON.) BRESLAU, DOCT. (HON.) STRASBURG, F.R.S.,

FOULERTON RESEARCH PROFESSOR OF THE ROYAL SOCIETY; FELLOW OF THE COLLEGE.

"Who hath put wisdom in the inward parts?
or who hath given understanding to the heart?"

MR. PRESIDENT AND FELLOWS OF THE COLLEGE,—It is customary and right in this our annual oration to begin by calling to mind the work of the founder himself, and especially the great discovery of the circulation of the blood, which represents the beginning and the foundation of all that we know in physiology and medicine. Harvey's treatise on "The Motion of the Heart" is throughout so modern in spirit, so akin in conception and treatment to records of research of the present day, that we may easily fail to appreciate the stupendous advance in human physiology that it embodies, and may wonder that we have had to wait so long for the full fruition of Harvey's discovery. But it must be remembered that the ordered knowledge of the world around us, whether living or dead, which we call science, forms a connected whole; and though, as its line advances, a brilliant discovery may push one part of the line in advance of the rest, such an outpost must remain more or less in the air and incapable of further advance until the whole line has moved up to its support. We now know that many of the problems raised by Harvey, with the promise to himself and his readers of further consideration at a later date, depended for their solution on the progress of other branches of human knowledge. And that is why to-day in our minds and memories we are reckoning among our saints, not only the distinguished line of Fellows of the College, but also men such as Boyle, Mayow, Hales, Cavendish, Lavoisier, Bernard, Pasteur, and a host of others, who were only in spirit our colleagues, and most of whom were not even students of medicine. Indeed, we might say that, during the 200 years succeeding Harvey's work, the whole scientific world has been travailing in order that medicine might be born. Thus it is that our science has had to wait until our own days for the attainment of those ends which Harvey had in mind in his dream of the results of his discovery: "Finally, reflecting on every part of medicine, physiology, pathology, semeiotics, therapeutics, when I see how many questions can be answered, how many doubts resolved, how much obscurity illustrated, by the truth we have declared, the light we have made to shine, I see a field of such vast extent in which I might proceed so far, and expatiate so widely, that this my tractate would not only swell out into a volume, which was beyond my purpose, but my whole life, perchance, would not suffice for its completion."

In the new light shed by his great discovery, he probably failed to appreciate the extent of the dark shadows cast by the great clouds of ignorance which had still to be dispersed. But the advance of knowledge, though slow at first, has progressed with ever accelerating speed. When I compare our present knowledge of the workings of the body, and our powers of interfering with and of controlling those workings for the benefit of humanity, with the ignorance and despairing impotence of my student days, I feel that I have had the good fortune to see the sun rise on a darkened world, and that the life of my contemporaries has coincided, not with a renaissance, but with a new birth of man's powers over his environment and his destinies unparalleled in the whole history of mankind. Not but there is still much to be learned: the ocean of the unknown still stretches far and wide in front of us, but for its exploration we have the light of day to guide us; we know the directions in which we would sail, and every day, by the coöperation of all branches of science, our means of conveyance are becoming more swift and sure. Only labour is required to extend almost without limit our understanding of the human body and our control of its fate.

HARVEY'S GREATEST GIFT TO THE WORLD.

Great as was the gift which Harvey gave to us in his discovery of the circulation of the blood, greater still was the method he taught us of formulating and solving the problems which we continually encounter in our endeavours to control disease. For countless ages mankind had learned slowly and painfully by experience. The more observant had from time to time noticed certain recurring sequences in the infinity of fortuitous phenomena continually presented to them, and as a result man had by slow degrees improved his lot and his powers over the forces of Nature. But how slow was the rate of progress. There is no evidence that the age-long duration of the period during which man had only sticks and stones to defend himself and to procure his food, the long delay in the discovery of the working of bronze and later of iron, are to be ascribed to any mental inferiority of those men as compared with those of the present day. What was lacking was the method. Mankind had advanced by fits and starts as the result of discoveries which were probably accidental, and these discoveries spread gradually along the lines of commerce and culture by imitation and the implicit copying of ritual. But with the realisation of the possibilities of the method of experiment—i.e., the creation and repetition of a chosen experience under controlled conditions, such as we find in its full development in Harvey's treatise—man came almost at a bound into the full use of the brain capacities which he had evolved during a long struggle for existence against the warring forces of an inclement nature.

It is true that the ultimate goal and the biological justification of science is the improvement of human conditions. But for the full and untrammelled exploitation of the advantages of the experimental method, it is essential that mere material advance shall not be the target of our ambition. This great secret of success in science was fully realised by Harvey when he enjoined us to search out, not the causes and cure of disease, but "the secrets of Nature, by experiment." This implies that we are to give free scope to the spirit of curiosity, with some measure of which every man, at any rate in his youth, is endowed. We ourselves are but part of the order of Nature, and all knowledge therefore is contributory to the science of medicine.

THE WORK OF THE HEART.

If this was the spirit that actuated Harvey, it is evident that his whole life would not have sufficed for the completion of the work opened up to him by his great discovery. Under its light he could see many summits to be attained and the beginnings of paths which must be followed. But long and arduous search was necessary before these paths could be traced out in their entirety. Thus the determination of the output of blood from the heart and the cause of its variations evidently seemed to Harvey a problem whose solution was ready to hand. He says: "The actual quantity of blood expelled at each stroke of the heart, and the circumstances under which it is either greater or less than ordinary, I leave for particular determination afterwards from numerous observations which I have made on the subject. Meantime, this much I know, and would here proclaim to all—that the blood is transfused at one time in larger, at another in smaller quantity; and that the circuit of the blood is accomplished, now more rapidly, now more slowly, according to the temperament, age, &c., of the individual, to external and internal circumstances, to naturals and non-naturals—sleep, rest, food, exercise, affections of the mind, and the like."

But many years had to elapse before we could give a quantitative expression both to the amount of blood expelled under normal conditions and to its variations, and explain the manner in which these variations are brought about. The Rev. Stephen Hales, second only to Harvey as an experimental physiologist, has only calculations based on measurements of the dead organ. The determination of the output in the living animal was first made in our own times, and it is only within the last ten years that methods have become available which reveal in man himself the quantity of blood leaving the heart in each unit of time, and therewith enable us to estimate the total work of this organ. Such methods have been devised by Krogh and by Haldane. If we accept the results of the former, we may say that in a normal man at rest each cavity of the heart expels about four litres per minute. During violent exercise when, as we know, the requirements of the body for oxygen may be increased tenfold, this quantity rises to 24 or even to over 30 litres (3 gallons) per minute. These figures convey only imperfectly the enormous rush of blood which is being effected by the heart under these conditions. An ordinary laboratory tap will deliver nothing like 30 litres per minute; to obtain this amount it is necessary to have recourse to a large tap such as that which is supplied to a bath. It means that the whole blood must pass through the heart and round the body every ten seconds, and complete the circulation of the body six times in every minute. And it must be remembered that the heart is putting out this colossal amount of blood against an arterial pressure which is higher than normal, and which may amount to 150 to 180 mm. Hg as against the 100 to 110 mm. which is the ordinary systolic pressure in the arteries of a resting individual.

We see, therefore, that the heart has a marvellous power of adapting its work and its performance in accordance with the needs of the body as a whole, and is fully deserving of the feeling of respectful admiration which inspires Harvey to speak of it as "the sun of the microcosm," "the household divinity," "the foundation of life," "the source of all action."

ITS POWER OF ADAPTATION.

To search out the intimate character of this power of adaptation is a problem almost as enthralling in interest as the demonstration of the circulation itself. It is easy to show that the increased output of blood from the heart during exercise is simply an expression of an increased inflow into this organ, the heart being so constituted that under normal conditions it will send on into the arteries all the blood that flows into it from the veins. Harvey probably had some inkling of this power when, in speaking of the action of the auricles, he ascribes to them the property of exciting a stronger contraction on the part of the ventricles, comparing the latter to the tennis player who can strike more forcibly and further if he takes the ball on the rebound.

In the intact animal a large number of processes, nervous as well as chemical, are involved in the increased contraction of the heart during muscular exercise. By the action of the central nervous system and of other physiological processes involved, the strain thrown on the heart is minimised, so that it can effect the increased work with the greatest possible economy of effort. But the intimate character of this power of adaptation is fully displayed only when we cut away the protective mechanisms, which are normally shielding the last citadel of life, and study the reaction of this organ when it is entirely isolated from the central nervous system and is reduced to the condition of a muscular pump with valves, working rhythmically and steadily in virtue of its own automatic powers.

We can make a "heart lung preparation," in which, the lungs being retained in connexion with the heart, the blood passing through this organ is kept properly aerated. The systemic circulation is, however, replaced by a system of elastic tubes passing to a venous reservoir, in which we can vary at will the inflow of blood into the heart, the arterial pressure (and therewith the resistance to the expulsion of blood from the left ventricle), and the temperature of the blood supplying the heart, while we can measure the pressures at any moment of time in all the cavities of the heart as well as the changes in volume of this organ. In such a preparation we find that, within very wide limits, the output of blood corresponds exactly to the inflow. Whatever is supplied to the heart on the venous side is expelled by it on the arterial side. And again, within very wide limits, whatever is the resistance to be overcome in the arteries, so long as we keep the inflow of blood constant, the output of blood by the left ventricle remains unaltered whether the pressure in the aorta be 40 or 200 mm. Hg.

We know now that the energy for all vital movements is derived ultimately from the food, and in each tissue from the oxidation of the constituents either of the tissue or of the blood circulating through it. It is possible in such an isolated heart to measure its respiratory exchanges, and so determine the extent of the oxidative processes responsible for the energy of the heart's contraction. We then find that the amount of oxygen, taken in by the heart and converted for the most part into carbonic acid, is proportional to the amount of work that the heart is set to do. The isolated heart is like the whole man—the harder he works, the greater are his respiratory exchanges. I am accustomed to compare the heart with an ideal motor-car which, without action on the part of the driver, would automatically admit more petrol and air when the resistance to the movement of the car increases—as, for instance, in going up hill.

THE LAW OF THE HEART.

The heart has thus the power of automatically increasing the chemical changes and the energy evolved at each contraction, in proportion to the mechanical demands made upon it, behaving in this way almost like a sentient and intelligent creature. But the cause of this power must lie in the muscular walls of the heart itself, and a study of the conditions under which it occurs and the concomitant changes in the heart has revealed the secret of its wonderful power. The solution is simple. We find that in the isolated heart every increased resistance to its contraction is associated with an increased diastolic volume of the cavity or cavities, which have to overcome the resistance. Putting the matter in another way, we may say that the larger the diastolic volume of a given heart, the greater is the force of the contraction which immediately ensues. The energy of contraction is therefore a function of the diastolic volume of the heart. Dilatation of this organ is not merely a pathological phenomenon, but is the means by which the heart achieves its purpose, and maintains an activity which varies with the needs of the organism for more or less blood.

In this relation we find also the secret of the power of compensation, such as occurs in cases of valvular disease and has been always a puzzle to pathologists. Injury, for instance, to an aortic valve, with the production of regurgitation, causes increased filling of the left ventricle at the following diastole, since this receives blood not only in the ordinary way from the pulmonary veins and left auricle, but also by a reflux through the damaged valve. The dilatation evokes an immediate increase in the force of the contraction, so that within a few beats the left ventricle sends on into the aorta the total amount of blood flowing into it during the preceding diastole, and the aorta receives sufficient blood not only to supply the body, but to make up for the amount leaking back through the damaged valve. The same reasoning applies to the compensation which occurs for any valve lesion, whether it be in the nature of a leak or of a stenosis, increased filling or increased resistance; and in an otherwise healthy individual, constant increase in work has, as a secondary result, increased growth and hypertrophy of the cardiac muscle, so as to make it fit to meet the abnormally greater demands throughout the life of the individual.

You will remember that Harvey insists on the essentially muscular nature of the heart. "It was not without good grounds," he says, "that Hippocrates in his book "De Corde" entitles it a muscle; as its action is the same, so is its function—namely, to contract and move something else." Increasing dilatation of the heart means greater length of its muscular fibres, so that we can express the law of the heart as a relation between length and energy; the longer the muscle fibre, the greater the energy of its contraction. In this form we find that the law of the heart is that of all muscular tissue, whether voluntary or involuntary. The Swedish physiologist Blix showed many years ago that the energy evolved in the contraction of a frog's muscle was proportional to its initial length, and A. V. Hill has proved that this holds good for the heat production during activity and therefore for the total chemical changes which are responsible for the contraction and recovery of the muscle. So that in searching after the cause of the heart's power of adaptation, we are brought into the region of final causes, in which we associate function with structure, and see in muscular contraction the expression of molecular changes occurring at the surface of longitudinal fibrillæ. Thus we bring together in one formula the sum total of our experiences with regard to the nature of excitation itself, development of mechanical energy, and the chemical, electrical, and heat changes which accompany muscular contraction. We are still far from a complete understanding of these matters, and still farther from any possibility of reconstructing a muscle fibre. But the path, so far as we can see along it, seems to lead to no impassable barrier, and to promise a complete description of the acts of excitation and contraction as molecular events occurring at surfaces.

THE LIMITS OF ADAPTATION.

Is there any limit to this power of adaptation? In skeletal muscle, increasing the length of the muscle fibres leads to an augmentation of the energy changes of contraction, succeeded later by a diminution as the muscle becomes overstretched. In the healthy mammalian heart the limits are set by the strength of the muscle fibres themselves. Freed from the pericardium the heart goes on increasing the strength of its contraction with increasing dilatation until the muscle fibres are actually ruptured, and when the heart finally fails we find its substance beset with hæmorrhages. In the body this overstrain of the heart is prevented by the tough fibrous sac of the pericardium. When the demand on the heart is so great that the heart dilates to the limits of the pericardium any further dilatation and resultant increased strength of beat becomes impossible; the output therefore falls off, and in the whole animal this diminished output results in defective supply of blood to the muscles and brain, giving rise often to fainting, and at any rate enforcing complete rest. Further activity of the animal becomes impossible and the heart is automatically given less work to do, so that it can recover, unless the increased activity of the animal and of the heart is a necessary condition of the animal's continued survival, as in a fight to the death. In this case, when the heart comes up against the pericardium, the fight is finished and the animal succumbs. We find the same story in the terminal changes of heart disease, where the process of compensation which I have described above becomes insufficient. Here again enforced rest may give time and opportunity for re-establishment of a sufficient circulation, but with advance of the fundamental morbid condition even complete rest becomes powerless to relieve the heart; the output falls off, the circulation is insufficient for the needs of the tissues, and we get all the secondary results of failure of compensation—suppression of urinary secretion, water-logging of the body and malnutrition of all its organs, which usher in the fatal termination.

During the last few years great advances have been made in our knowledge of the causation of many of these morbid conditions, and this increased knowledge has, as always, enhanced our powers of dealing with such cases, of staying the course of the disease or delaying its fatal issue. It is interesting to note that these advances are the direct outcome of researches made with the sole object of elucidating the intimate nature of muscular contraction. In his book Harvey remarks, "Of these things we shall speak more opportunely when we come to speculate upon the final cause of this motion of the heart." Such speculation at that time would have been in vain. It seems probable that he anticipated finding the solution in the study of the generation of animals, but we know now that to penetrate more deeply into the final cause of the action either of skeletal muscles or of the heart requires a physical and chemical knowledge which even now we are only beginning to attain. I would remind you that the string galvanometer, the employment of which has thrown so much light on the essential nature of disturbances in the heart rhythm, was invented by Einthoven with a view to study the electrical changes accompanying activity in any kind of tissue.

THE INHERENT RHYTHMIC POWER OF THE HEART.

In dealing with the origin of the rhythmic power of the heart, Harvey rightly ascribes it to the heart muscle itself, and brushes aside any suggestion that it is dependent on the nervous system, or the liver, or any other organ. His assurance on this point was due to his observation of the developing chick, in which the first sign of life was the pulsating spot of blood in the region where the heart was being formed. It is interesting to note that it is the same method—namely, the investigation of development—which has settled the question of the seat of the rhythmic power of the heart, and has revealed to us the origin and course of the rhythmically recurring wave of contraction in the heart of man. By means of a technique, first devised by Harrison in the United States, it is possible to cultivate living tissues outside the body in much the same way as we have learned to grow micro-organisms. Using great care to exclude infection we are able to transfer to plasma or salt solution on a glass slide fragments of tissue which, being kept warm, live and multiply. From such a preparation further generations can be brought up, and in one such case a preparation of the muscle cells of the heart of a chick has been kept alive, growing and dividing, for 12 years—a time far beyond the natural span of the life of the fowl. Such a result proves that mortality is but an accident of the complexity of our living machine, and not a necessary quality and fate of the tissues of which the body is composed. But during these 12 years the muscle cells have not ceased to contract rhythmically, showing that in their peculiar properties must be sought the origin of the rhythmic beat of the heart, thus finally disposing of the various views which have been held, according to which the origin of the heart beat was to be sought in the nervous ganglion cells and fibres present in different parts of this organ.

And it is by the embryological method—i.e., by observing the processes of generation—that Keith and Flack were able to lay the anatomic foundations of our present knowledge of the origin and course of the contractile processes in the heart of the higher animals. In the developing heart, as in the lower vertebrates, the beat originates in that part of the contractile tube which later will form the sinus venosus. In the course of the changes undergone during development, Keith showed that this sinus tissue persisted at definite parts of the mature heart, and could be distinguished under the microscope from the surrounding parts of the heart. This special sinus tissue was given the name of the sino-auricular node and the auriculo-ventricular node.

The brilliant experiments by our distinguished Fellow, Sir Thomas Lewis, have resulted in a complete knowledge of the part played by these nodes in the cycle of the heart's contraction. He has shown how the sino-auricular node is the pace-maker of the heart, how the contractile process originating here

spreads through the auricular muscle to the auriculo-ventricular node, and then passes rapidly through the bundle of specialised muscular tissue known as the *a-v* bundle to all parts of both ventricles. We have in this bundle an interesting example of a muscular tissue differentiated to serve the propagation of excitation rather than for contraction, so that it closely resembles nerve in the manner of its function. To the same fine and careful experimenter we owe the explanation of one of the commonest conditions in the diseased heart—namely, auricular fibrillation or delirium, which is responsible for the irregular ventricular contractions, often leading rapidly to exhaustion and failure of the heart. It is remarkable that the clue to the explanation of this condition was first given by the observations of Romanes on the contractile tissue of jelly-fish, which by its rhythmic pulsation propels these graceful animals through the sea-water. It was shown by Mayer for the jelly-fish and by Mines for the frog's heart that it was possible to obtain a ring of contractile tissue in which a wave of contraction passed continuously round the ring, and the merit of Lewis's observations is the proof that delirium is of the same nature as this circus movement, so that the contractile wave continually progresses over the muscular tissue, exciting each part in turn but in a completely incoördinate fashion. It was long ago shown by Marey that the rhythmicity of the heart was bound up with the prolonged refractory period affecting the heart muscle after its contraction, during which period it was insusceptible to any form of excitation. Lewis has shown that the circus movements which are responsible for fibrillation are due to a disturbance in the normal relation between the rate of conduction of the excitatory process and the refractory period in the heart muscle. Thus instead of an orderly procession of impulses from one node to the next and so to the *a-v* bundle and ventricles, every individual fibre is contracting rhythmically but independently of what is happening in its surroundings.

Time will not allow me to deal with the manner in which the heart, already so perfect as it would seem in its power of adaptation, is controlled by the central nervous system, so that the adaptation to changes in the environment and to the needs of the most distant parts of the body can be carried out with greater perfection and with the least possible drain on the energies of the heart muscle. Among such adaptations must be included those attendant on the emotions —"every affection of the mind that is attended by either pain or pleasure is the cause of an agitation whose influence extends to the heart." But, indeed, Harvey's treatise, being the foundation of modern physiology, might serve as a text to a commentary from which but little of our present-day knowledge of the organs of the body could properly be omitted.

I should like, however, to be permitted to allude to another chapter in modern physiology which can be said to have grown out of Harvey's discovery of the circulation of the blood, and which is becoming every day of increasing importance.

THE CHEMICAL INTEGRATION OF THE BODY.

In the dedication to his work Harvey compares the heart to the sovereign king, and throughout he continually recurs to what we should now describe as the "integrative function" of this organ. In virtue of the circulation which it maintains, all parts of the body are bathed in a common medium from which each cell can pick up whatever it requires for its needs, while giving off in return the products of its activity. In this way each cell works for all others—the lungs supply every part with oxygen and turn out the carbon dioxide which they produce, the alimentary canal digests and absorbs for all, while the kidneys are the common means of excretion of the soluble waste products of the body. Changes in any one organ may therefore affect the nutrition and function of all other organs, which are thus all members one of another. But, in addition to enabling this community of goods, the circulation affords opportunity for a more private intercourse between two or at any rate a limited number of distant organs.

It is now 18 years since I drew the attention of this College to the chemical messengers or hormones which are employed by the body for this purpose. As an illustration of the method by which they work, I adduced the example of carbonic acid, which is the product of all cellular activity, and at the same time has a specific excitatory effect on the respiratory centre, so that the respiratory movements keep pace with the needs of the whole body for oxygen. The typical hormone, however, is a drug-like body of definite chemical composition, which in a few cases is actually known, so that the substance has been synthesised outside the body. It is more or less diffusible, and may even withstand without alteration the temperature of boiling water. It is generally easily oxidisable in a neutral or alkaline medium, so that after its production it does not remain long in the blood; it delivers its message and is then destroyed. Each specific hormone is manufactured by a group of cells and turned into the blood, in which it travels to all parts of the body, but excites definite reactions in one or a limited number of distant organs. The production and action of these substances are continually going on in the normal animal. They are necessary to health, and their production in excess or in deficit gives rise to disease and maybe to death. Typical of these substances is secretin, a substance produced in the epithelial cells lining the upper part of the small intestine when these come in contact with weak acid, so that it is produced in normal circumstances by the passage of the acid chyme from the stomach into the duodenum. Directly it is produced it is absorbed into the blood and travels round to the pancreas, to the liver, and to the intestinal glands, in all of which it excites secretion. By means of this chemical reflex the arrival of the products of gastric digestion in the small intestine evokes within a couple of minutes the secretion of the three juices whose coöperation is necessary for completing the work of digestion and solution of the food already begun in the stomach. It is probable that this mechanism is but one of a whole chain of chemical reflexes responsible for the orderly progression of the various stages in the digestion of food.

These hormones may apparently be formed by any kind of tissue. In many cases a gland which has, in the evolutionary history of the race, poured its secretion by a duct into the alimentary canal or on to the exterior, loses its duct and becomes a ductless gland, the secretion being now transferred either immediately or through the lymphatics into the blood-stream. In either case these chemical messengers may be formed from masses of cells which have at no time had a glandular structure, and may be modified nervous tissue, germinal tissue, or some part of the mesoblast. As a type of the ductless gland derived from one with an external secretion the most familiar example is the thyroid. The physiological action of its internal secretion and the morbid results of its excess or deficiency, affecting tissue growth and development, metabolism and mentality, are familiar to all. In recent years the active substance has been actually isolated and its constitution determined by Kendal, who has shown that it is an iodine derivative of an amino-acid, tryptophane. It seems almost a fairy tale that such widespread results, affecting every aspect of a man's life, should be conditioned by the presence or absence in the body of infinitesimal quantities of a substance which by its formula does not seem to stand out from the thousands of other substances with which organic chemistry has made us familiar.

But although we do not yet know their constitution, the chemical messengers associated with the reproductive organs are possibly even more marvellous in the influence they exert on the different parts and functions of the body. The effects of castration have been the subject of observation almost from the beginnings of civilisation, but it is only during the last

few years that definite proof has been brought forward showing that these effects are due to the removal of chemical messengers normally produced in the testes. The whole differentiation of sex and the formation of secondary sexual characters are determined by the circulation of the blood of chemical substances produced either in the germ-cells themselves or, as seems more probable, in the interstitial cells of the testes and ovary, which themselves are probably derived from the germ-cells of the embryo. Thus it is possible by operating at an early age to transfer male into female and vice versa. Removal of the ovaries from a hen causes the assumption of male plumage; the removal from a young cock of the testes and their replacement by an implantation of ovaries causes a disappearance of the comb and the assumption of the plumage of a hen. Each animal, as concerns its general build and colour, has a neutral form, which, as has been shown by Pézard, results from the extirpation of either testes or ovaries. In fowls the neutral form, as judged by the plumage, approximates the male, whereas in sheep the neutral form resembles the female. There is no question that, by the implantation of ovaries or testes into the fœtus at a sufficiently early age, one could produce the whole development of the internal and external genitalia corresponding to the sex of the gland implanted. It is worthy of note that these sex characters affect also the mentality and the reactions of the animal, although they are quite independent of any nervous connexions. Here, as in the case of the thyroid, the functions of the central nervous system, in their highest manifestations, depend on the circulation in the blood of chemical substances or hormones. The wonderful development that takes place in the female after conception to fit her to nourish the fœtus as well as the young child is also due to hormones, produced in some cases perhaps in the ovaries, in other cases in the product of conception itself.

We owe to Schafer the knowledge of the internal secretion of the medulla of the suprarenal bodies. As Cannon has pointed out, this secretion is poured into the blood during conditions of stress, anger, or fear, and acts as a potent reinforcement to the energies of the body. It increases the tone of the blood-vessels, as well as the power of the heart's contraction, while it mobilises the sugar bound up in the liver, so that the muscles may be supplied with the most readily available source of energy in the struggle to which these emotional states are the essential precursors or concomitants.

Wonderful, too, is the influence exerted by the secretions of the pituitary body. This tiny organ, which was formerly imagined to furnish the mucus to the nasal cavities, consists of two lobes which have different internal secretions. That produced by the anterior lobe seems to influence growth, excess producing giantism or acromegaly, while deficiency leads to a retarded growth and infantilism. The posterior lobe, which in aspect would seem but a small collection of neuroglia, nevertheless forms one or more substances which, circulating in the blood, have the most diverse influences on various parts of the body. They cause contraction of the uterus and of the blood-vessels (these are possibly two distinct substances), they may increase or diminish the flow of urine, they affect the excretion of chlorides by the kidney, and, according to Krogh, their constant presence in the blood is essential for maintaining the normal tone of the capillaries. In the frog the post-pituitary hormone is responsible for the protective adaptation of the colour of the skin to the environment—an adaptation which is effected by retraction or expansion of the pigment-cells or chromatophores of the skin; and, if we may accept Kammerer's conclusions, the pituitary hormone which is poured into the blood for this purpose affects the germ-cells themselves, so that individuals born of parents that have lived in light or dark surroundings are correspondingly light or dark—a real transmission of acquired peculiarities effected, not by the gemmules of Darwin, but by the influence of a soluble diffusible hormone on the germ-plasm.

THE THERAPEUTICS OF HORMONES.

In the multiplicity and diversity of the physiological effects produced by these various chemical messengers one is apt to lose sight of the fact that we are here investigating one of the fundamental means for the integration of the functions of the body. These are not merely interesting facts which form a pretty story, but they are pregnant of possibilities for our control of the processes of the body and therewith for our mastery of disease. Already medical science can boast of notable achievements in this direction. The conversion of a stunted, pot-bellied, slavering cretin into a pretty, attractive child by the administration of thyroid, and the restoration of normal health and personality to a sufferer from Graves's disease by the removal of the excess of thyroid gland, must always impress us as miraculous. In the same way we may cure or control for the time being diabetes insipidus by the injection of the watery extract of the posterior lobe of the pituitary body. The latest achievement in this direction is the preparation, by Banting and Best of Canada, of the active principle normally formed in the islets of the pancreas, and the proof that the diabetic condition in its severest forms can be relieved by its subcutaneous administration.

In my Croonian lectures I suggested that, if a mutual control of the different functions of the body be largely determined by the production of definite chemical substances in the body, the discovery of the nature of these substances would enable us to interpose at any desired phase in these functions, and so to acquire an absolute control over the workings of the human body. I think I may claim that in the 18 years that have since elapsed we have made considerable progress towards the realisation of this power of control which is the goal of medical science. But there still remains much to be done and many difficulties to be unravelled, and it may be worth our while to consider along what lines researches to this end must be directed. There are, no doubt, many hormonic relationships of which at present we are unaware, since every year research adds to their number. But assuming we know that such and such an organ produces an internal secretion which is necessary for the normal carrying on of a given function or functions, we may desire to diminish or enhance its effects in a patient, or to replace it when it seems to be entirely lacking.

There seem to be three possible methods by which we medical men can interpose our art in the hormonic workings of the body:—

(1) In the first place we may find what is the effective stimulus to the production of the hormone, and by supplying this, increase its production by the responsible cells. For instance, we know that by the administration of acid, or at any rate by increasing the passage of weak acid from the stomach to the duodenum, we can enhance the production of secretin, and so of pancreatic juice and the other juices. Probably therefore, when we give dilute acids to assist gastric digestion, we are setting into motion the whole chain of reflex processes in the alimentary canal, and the chief value of our administration may be its effect on the pancreas. But in a large number of cases we do not yet know what is the effective stimulus to the production of these internal secretions. In the adrenals we know the secretion can be augmented through the central nervous system and the splanchnic nerve under the influence of emotions or of lack of oxygen, but we have no knowledge of the factors determining the production of the pituitary hormones or of insulin by the islets of Langerhans, and this condition of ignorance extends to most of the other ductless glands.

In some cases deficient production of a hormone may be due to the absence in the food and drink of some necessary constituent. Thus iodine is essential to the formation of the specific secretion of the thyroid gland (iodothyrin). If iodine be entirely absent from the drinking water and the soil, so that it is not contained

even in minute quantities in the vegetable food grown in the district, the thyroid undergoes hyperplasia—in a vain endeavour to make bricks without straw, to produce its proper hormone without iodine. This seems to be the cause of the great prevalence of simple goitre in certain districts, especially in Switzerland and in parts of the United States. It has been shown, by Marine and others, that goitre can be practically eliminated from these districts by the occasional administration of small doses of iodine or iodides. These results were communicated in 1917 to Dr. Klinger, of Zurich, and as a result of his experience the Swiss Goitre Commission has recommended the adoption of this method of goitre prevention as a public health measure throughout the entire State. Already great progress has been made in the abolition of this disease from the country. Thus the incidence of goitre among all the school-children of the canton of St. Gallen has been reduced from 87·6 per cent. in January, 1919, to 13·1 per cent. in January, 1922.

(2) Where a disordered condition is due to diminished production of some specific hormone, we may extract the hormone from the corresponding gland or tissue in animals. It is characteristic of these hormones that, so far as we know, they are identical throughout all the classes of vertebrates, and it is possible that they may be found far back in the invertebrate world. This method is easy when, as in the case of the thyroid, the active principle is stored up in the gland and is unaltered by the processes of digestion, so that we can obtain all the curative effects of the hormone if we administer dried thyroid by the mouth. We have no evidence that any other of the hormones with which we are acquainted partake of this resistance to digestion, so that to produce their specific effects they have to be introduced by subcutaneous injection—a great drawback when the administration has to provide for the constant presence of a small concentration of the hormone in the blood and tissues. In the case of insulin, for instance, it seems necessary to repeat the injection every 12 hours to obtain any continuity of action, and the same thing probably applies to the pituitary extract, while in the case of the genital hormones no reliable effect has been obtained except by the actual implantation of the organ from an animal of the same family.[1] We may, however, look forward to the day when the chemical constitution of all these hormones will be known, and when it may be possible to synthesise them in any desired quantity. We may then be able to overcome the inconvenience of subcutaneous injection by giving relatively colossal doses by the mouth, or we may be able to modify their constitution to a slight extent so as to render them immune to the action of the digestive juices without affecting their specific action on the functions of the body.

(3) The ideal, but not, I venture to assert, the unattainable, method will be to control, by promotion or suppression, the growth of the cells themselves, whose function it is to form these specific hormones. Though this method seems at present far from realisation, the first steps in this direction have already been taken. It must be remembered that the power of controlling growth of cells involves the solution of the problem of cancer. Experiments on the growth of normal cells outside the body have shown that they can be stimulated to vie with cancer-cells in the rate of their growth, or can be inhibited altogether according to the nature of the chemical substances with which they are supplied. And we know that the growth of certain cells, such as those of the mammary gland or of the uterus, is excited by specific chemical substances produced in the ovary or fœtus, and we may be able to find specific substances or conditions for any tissue of the body, which may excite growth when this is retarded or diminish growth when this is in excess. It may be that in some cases purely mechanical interference will suffice. Thus, in experiments by Steinach and others, it has been found that ligature of the vas deferens close to the testis, while causing atrophy of the seminiferous cells, brings about overgrowth of the interstitial cells which, as we have seen, are chiefly responsible for the hormones determining the secondary sexual characters. Among these secondary sexual characters must be classed the whole of a man's energies. Virility does not mean simply the power of propagation, but connotes the whole part played by a man in his work within the community. As a result of this hypertrophy, these authors claim to have produced an actual rejuvenation in man, and thus to have warded off for a time senility with its mental and corporeal manifestations. Further experiments and a longer period of observation are necessary before we can accept these results without reserve, but it must be owned that they are perfectly reasonable, and follow as a logical sequence of many years' observations and experiments in this field.

It would, indeed, be an advantage if we could postpone the slowly increasing incapacity which affects us all after a certain age has been passed. Pleasant as it would be to ourselves, it would be still more valuable to an old community such as ours, where the arrival of men in places of rule and responsibility coincides, as a rule, with the epoch at which their powers are beginning to diminish. The ideal condition would be one in which the senile changes affected all parts of the body suddenly and simultaneously, so that the individual died apparently in the height of his powers. For it must not be thought that in any such way we could prolong life indefinitely. Pearl has pointed out that if all the ordinary causes of premature death were eliminated, this would increase the average duration of life by not more than 13 years. On the other hand, he shows that the children of long-lived parents have an expectation of life which is 20 years greater than that of the average individual. If longevity is our goal it is not medical science we must look to, but eugenics, and I doubt whether the question is one with which we are concerned. The sorrow of the world is not the eternal sleep that comes to everyone at the end of his allotted span of years, when man rests from his labours. It is the pain, mental and physical, associated with sickness and disability, or the cutting off of a man by disease in the prime of life, when he should have had many years of work before him. To us falls the task of alleviating and preventing this sorrow. In our childhood most of us learnt that suffering and death came into the world through sin. Now, when, as physicians, we stand on the other side of good and evil, we know that the sin for which man is continuously paying the penalty is not necessarily failure to comply with some one or other of the rough tribal adjustments to the environment, which we call morality, but is always and in every case ignorance or disregard of the immutable working of the forces of Nature, which is being continually revealed to us by scientific investigation. In spite of the marvellous increase in knowledge, to some aspects of which I have drawn your attention, suffering is still widespread amongst us. Only by following out the injunction of our great predecessor, to search out and study the secrets of Nature by way of experiment, can we hope to attain to a comprehension of "the wisdom of the body and the understanding of the heart," and thereby to the mastery of disease and pain, which will enable us to relieve the burden of mankind.

[1] In my Croonian lectures in 1905 I reported some experiments made in conjunction with Dr. Lane Claypon, in which I had produced hypertrophy of the mammary glands in virgin rabbits, and in some cases actual secretion of milk by the daily subcutaneous injection of the filtered watery extract of young rabbit fœtuses. Similar results were obtained by Foa. But a weak point in these experiments was that the ovaries had not been previously extirpated. Ancel and Bouin have shown that in the rabbit the mere rupture and discharge of a Graafian follicle, with the subsequent growth of a corpus luteum, are sufficient to cause hypertrophy of the mammary glands (the effective hormone presumably having its seat of manufacture in the luteal cells). It seems possible, therefore, that the effect of our injections may have been on the ovaries, and that the growth of the mammary glands was only a secondary and indirect result. I do not therefore now regard our experiments as conclusive.

THE EARLY TREATMENT OF MENTAL DISORDER.

A CRITICAL SURVEY OF OUT-PATIENT CLINICS.*

BY J. G. PORTER PHILLIPS, M.D., F.R.C.P.LOND.,
PHYSICIAN SUPERINTENDENT, BETHLEM ROYAL HOSPITAL, AND PHYSICIAN FOR, AND LECTURER IN, PSYCHOLOGICAL MEDICINE, ST. BARTHOLOMEW'S HOSPITAL, LONDON.

As students of psychiatry we must remember that the human being is merely a biological unit always to be studied and considered by the quality of its reaction to the environmental impositions made upon it by the social body to which it belongs. The late Dr. Charles Mercier, in his "Text-book of Insanity," very ably and clearly explains the relative position of the psychiatrist to his patient. He states:

> "That the student of medicine proper, when commencing his duties as a psychologist, crosses the scientific frontier into a new province, like the shipwright or engineer of a vessel who quits the engine-room to take duty on the quarter-deck. With his acquired knowledge of the structure and working of the craft his function now is to know how the vessel comports herself in wind and weather, and to study charts and tides."

This dictum expressed so aptly in the above simile can be safely taken as the working principle of all psychiatrists, and upon it one can build the whole edifice dealing with the study and practice of early treatment.

Mental disorder in its earliest stage, as most psychologists understand it, is a condition of mind which may more often than not permit an individual to adjust himself to his surroundings and to follow his avocation without ever reaching the stage when the medico-legal label of "insanity" has to be applied to the case. It is very probable that most of us at some time or another suffer in no small degree from an impairment or disturbance of our simple attributes of mind which concern the lower psychological levels, and may thus be victims of mental disorder. In these early phases one is still able to carry out fairly well the essential law of adaptation, and so harmonise with our ever-trying and kaleidoscopic conditions of life. It is well known that the exacting nature of civilised life tends to make itself felt chiefly upon those who are unfortunate enough to be endowed with a weak or unstable mental make-up, and it is to these individuals we have to pay our attention in the form of early treatment. For some generations past we have been teaching the gospel of prophylaxis, and it behoves those who are entrusted with the health of the nation to use every means available to prevent ill-health, whether it be mental or physical. Thus prophylactic medicine, guided by anxious care for health, must forcibly ascertain with greater exactitude the causal connexions within its own field.

Beginnings of Early Treatment.

Much careful thought and valuable work have been exercised in the study and treatment of recognised and well-established mental disease, but it is only of recent years that the early treatment of mental disorder has seriously engaged the attention of psychiatrists. Unfortunately, up to the present moment, those responsible for the framing of the law have made a class distinction as regards the methods of procedure in handling cases of mental disease. For many years past, under the ægis of the Board of Control, opportunities have been offered to private patients desirous of obtaining early indoor treatment in the form of the voluntary boarder system, a scheme which has been in vogue at Bethlem Royal Hospital and elsewhere until the present day, but in the case of the rate-aided or pauper patient no early indoor or voluntary boarder system has existed, and only when the individual had drifted into the zone of certifiable insanity could any actual indoor treatment be offered.

Before the war, at several of the big general hospitals, out-patient clinics were instituted where mental specialists could be consulted, and where work has since been carried out with some measure of success, but in the majority of cases, particularly in those of a psychotic nature, no intensive or prolonged treatment was attempted or thought possible. Indeed, without specially organised departments on the lines pursued in mental hospitals, most general hospitals are not even now in a position to undertake the care and treatment of mental cases. The good which has been accomplished so far by out-patient departments of general hospitals undertaking the treatment of mental cases is beyond dispute, but much remains to be done. Latterly, several specialised clinics have sprung up to deal with this important and difficult problem of early treatment, directing their energies to patients whether of the private or pauper class. In 1919 at Bethlem Royal Hospital an out-patient department was inaugurated, where considerable experience and knowledge has subsequently been obtained by those in charge. Similarly, the Maudsley Hospital, the opening of which has been delayed by war-time exigencies, threw open its doors in 1922 to carry out both the outdoor and indoor treatment of civilians. Furthermore, the Tavistock Clinic, another post-war institution, has been successfully organised and continues to do good work in this direction.

Hospital Accommodation for Early Mental Cases.

The first of the general hospitals to wed psychiatry to medicine proper has been the Middlesex, where three wards have recently been set apart for the reception of early mental cases, the treatment of which will come under the direction of the St. Luke's Mental Hospital staff. In addition, at Brighton the Lady Chichester Hospital has for some years continued to rank as a successful pioneer. It will thus be seen that out-patient clinics for the treatment of mental disease are of comparatively recent growth, but they are already in operation in the United States of America and in Australia. The results to date promise far-reaching effects upon the future treatment of incipient mental disease. The war has strewn the community with nervous and mental wrecks, many of whom are potentially insane, but by no means beyond improvement or ultimate cure, provided a wisely adjusted coöperation between doctor and patient can be secured, with a trained social worker as a connecting link.

"Shell-shock" and Out-patient Clinics.

The problem of the so-called "shell-shock" patient has forced the whole question of the early treatment of neurosis and psychosis to a position of pre-eminence and recurring persistence. If the shock and violence of war experiences resulted in complete inability to face reality, and if by care, understanding, and skilled treatment mental and moral balance could be restored, there is no reason why civilians, harassed and bewildered by their social environment, should not experience a like benefit from similar care and treatment. Neuroses, psycho-neuroses, and psychoses all have a common basic origin in both soldiers and civilians, whether due to shock, nervous instability, continued stress, lack of adaptation, or psychic trauma. In the case of civilian patients, without the glamour of military service in extenuation of their condition, the psychiatric social worker should be of the greatest value in unravelling the contributory causes of mental disorder. In the case of the soldier, the shock or stress may have been only a matter of minutes or hours at the most, whereas in the case of the civilian, the exciting cause of the incompatible social surroundings perhaps have been the burden of years; but the functional damage may be identical in each case. In both kinds of patients one must expect to find a

* Abridged from a paper read before the Medico-Psychological Association, which will appear in full in the Journal of Mental Science, October, 1923.

diversity of types, and the most hopeful results are to be looked for in cases where mental and physical collapse was only partial and where the antecedent history was nil. In those cases, especially if the patient was alive to his actual condition and had some insight into the relation of cause and effect, he was successfully encouraged in self-help and to readjust his attitude to the inevitable stress and strain of modern life.

For such cases the establishment of the out-patient clinic was the solution of the problem, and if progress has been slow it must be put down to lack of funds. Taxation, trade depression, and the gospel of national economy may retard progress for some time to come, but the seed has been sown, and part of the charitable funds allocated to general hospitals should be diverted for the upkeep of mental out-patient clinics. This action might help to obviate the cleavage and prevent the distinction between the mental and the physical sides of medicine—a state of things far too prevalent to-day.

It might be here pointed out that the difference between the cost of treatment of in-patients and of out-patients is not sufficiently realised by the general public, and, in appeals for funds or statements relating to hospital finance, this difference should be brought to notice. The cost of one patient in a county mental hospital is nearly 30*s*. per week, whereas the cost per patient in a well-equipped up-to-date out-patient clinic would probably not exceed one-tenth of that sum. Even if the cost of maintaining an efficient social service in connexion with the clinics be taken into account, the cost of out-patients' departments is relatively small, when their value as a means of reducing the cost of prolonged care in hospital is shown. By means of the clinics many patients, who would be chargeable upon the State, are kept at home, either self-supporting or cared for by their relatives.

Community Value of Early Treatment.

Early treatment of mental cases is of vital importance to the State if considered from the point of view of community hygiene, and the well-being of the race. It requires little imagination to picture the domestic misery which accompanies mental derangement. The time which elapses between first symptoms and the necessity for certification and removal, or until the patient becomes a direct menace to the family, is filled with anxiety and care for all parties concerned. The patient, himself, fully or dimly conscious of his condition, leads a life of misery, which in itself increases his liability to a final and complete mental dissolution. The immediate members of his family are daily subjected to caprice and outbursts possibly, and the reaction on themselves must, in time, have deplorable results on their nervous systems. The only too prevalent and popular idea of the added stigma of an insane relative holds them back from seeking early professional advice and friendly assistance, and by the time the patient is removed from his environment he leaves behind him one or more members of his family in a state of mental and physical exhaustion, thus adding to the sum-total of avoidable human suffering and economic inefficiency.

Another important plea in favour of the extension of the out-patient clinic system is that it affords opportunities for research which may prove to be of the greatest value in the future social organisation of mankind. The staff of a clinic should be made up of physicians, specialists, nurses, and social workers, all trained upon lines having the same objects in view. Facilities also for routine physical and laboratory examinations, mental tests, X ray, and electrical examinations and therapeutic equipment should be available, from which data can be drawn and a conclusive diagnosis made.

Routine at the Bethlem Royal Hospital Clinic.

In order to elucidate and emphasise any criticism which one may make as the result of practical experience gained in this department, I would like to review briefly the procedure as adopted at Bethlem Royal Hospital for the handling of the out-patients who require early treatment. The clinic is open on Tuesdays, Thursdays, and Fridays. On Tuesday and Friday a psychiatrist and neurologist are in attendance and deal with all cases of neurological and psychiatrical interest, taking full advantage of conference when an exchange of opinion is needed. This system of collaboration between the sister sciences of neurology and psychiatry—a long-cherished idea of mine—fortunately came into being at the inception of our out-patient clinic in Lambeth-road and has proved to be of inestimable value and benefit, both to the physicians and to the patients. In the case of a patient whose condition necessitates further investigation of a specialised character, he is referred to one or more of the specialists indicated by the nature of his symptoms.

Now with regard to those cases requiring some form of psychotherapy. It has been found that under present economic conditions, treatment of this kind is far too costly to be indulged in, other than upon a small scale, owing to its exacting demands made upon the energy and time of the members of the already too small staff. We live in hope that sooner or later larger sums of money will be expended in increasing the working capacity of these prophylactic clinics in the way of added personnel and equipment. Those who do require psychotherapy are carefully selected and attend on an afternoon specially set apart for the treatment of such cases. Patients needing massage or electrical treatment attend the hospital three times weekly, when they are dealt with either by a male or female nurse, as the case demands, who has been specially trained in this branch of treatment. Should any cases suggestive of mental deficiency be encountered which call for further consultation and opinion, the patients are referred to a physician on the staff who attends regularly once weekly and deals specially with them. Pathological and X ray examinations are carried out regularly by the pathologist and radiologist respectively, special attention being paid to the clinical investigation of the blood, urine, and excreta, and for those cases requiring it, intracranial, dental, and visceral radiograms are made. In addition, clinical assistants afford considerable help in compiling notes and supplying other data.

New cases are restricted usually to six at each session, and the procedure in dealing with them is, generally speaking, similar to that which is followed at the out-patient departments of all general hospitals. However, a special warning note may be made here. Under no circumstances is the patient or relative allowed to handle the case-sheet, as is the usual custom in other out-patient departments. This rule is rigidly enforced owing to the fact that I have known impressionable patients and relatives foolishly discussing the medical notes and opinions regarding the case, resulting in injurious effect upon the patient's mental condition. The average number of patients attending each clinic is about 35; the total number of new cases attending during the year was 323; the total number of attendances was 3864. As to average attendances, that for the civilian patient was 4 and that for the Ministry of Pensions case was 12. Each patient is interviewed by the lady almoner, who, in this department, acts, in addition, as a social worker—an officer who, as we shall see later, is of the greatest importance. Although it is usually convenient and economical to combine the offices of almoner and psychiatric social worker, it may not always be possible to do so, especially in clinics attached to general hospitals where the almoner's work is already exceedingly heavy. Small charges, varying from 6*d*. to 5*s*. for each attendance, are made according to the status of the individual, which is determined by the almoner, and in this way excluding overhead expenses, the clinic, being practically self-supporting, has proved itself, in our case, to be a success from the financial aspect.

Special Difficulties of a Psychiatric Clinic.

The psychiatric out-patient clinic differs in many respects from the out-patient department of a general hospital, more particularly with regard to the data required by the physician for the diagnosis and treatment of his cases. An intimate confidence must be set up between doctor and patient and the personal relationship must be so close that no clinical facts, however trivial they appear to the patient himself, should be overlooked. It is only in this way that the patient will feel that he is really understood and that his case is not hopeless. The physician requires to know the details of his home surroundings, what actions and reactions in the daily round there may be causing strain to himself or his friends. Information of this kind is not easy to elicit from uneducated people, who, in addition to self-consciousness in the presence of those with whom they are not in the habit of associating, have not the mental equipment for a correct and unbiassed relation of facts. They are unable to discriminate between essentials and trifles; they often describe at great length, and not very clearly, what they think they ought to have seen in the patient, but did not. Irrelevancies of this kind waste time and obscure the issue and physicians should not be subjected to this kind of distraction, more especially if the social worker is at hand to prepare the preliminary notes of the case.

The Psychiatric Social Worker.

It is encouraging to know that an experienced worker has also been appointed as almoner and inquiry officer at the Maudsley Hospital, and I understand that a voluntary worker has been trained and attends one or two days a week at the Tavistock Clinic also. It may be here stated that the distinction of being the first out-patient clinic in England to appoint a psychiatric social worker rests with this hospital. It is this officer, who, subsequently, if the case requires it, visits the home of the patient and makes judicious and tactful inquiries regarding the worldly setting of the individual. It is to this officer the physician in charge looks for much valuable information regarding life-history and habits in the case of the patient concerned. It is also to her the physician refers for the details of any social factor which may be present in the environment of the patient which is proving to be a fruitful source of mental irritation to the individual, militating against his well-being. In support of this I may mention that I have oft-times been deeply impressed by the fact that a patient upon whom one would look as a simple case with a favourable prognosis has persistently continued to show signs of mental disorder, and it has fallen to the lot of the social worker to elicit the irritating factor in the social setting of the individual which has proved to be the cause of the breakdown. The importance and value of the assistance she can render the physician can be appreciated only by those who have experienced it.

As a matter of general interest, some may like to hear how the work is organised and carried out by this officer. All new cases coming to the physician are investigated by the worker before their second visit. He then has before him as full a report as possible of the family and personal history of the patient, and a brief account of the salient features in the home environment. After a further examination if any special treatment or change in the surroundings of the patient is recommended, the worker endeavours to make the necessary arrangements. A careful record is kept of attendance, whereby it can be seen at a glance if any patient has failed to attend the clinic for over a month, and a follow-up visit is paid to ascertain the reason. Cases of a purely neurological nature are not investigated in this way, unless for some special purpose and at the request of the neurologist. So much for the individual who requires early treatment of the out-patient order.

The Mental Treatment Bill.

On the other hand, the inmates of a mental hospital, whether voluntary boarders or under certification, present problems several degrees more serious than the really early case. As a general rule, no man or woman enters for in-patient treatment until every means has been tried to control and check the disease, which, if approaching the chronic stage, leaves little for scientific research to accomplish and small hope of amelioration by therapeutic experimentation. The new Mental Treatment Bill is a stride forward in State medicine and should lead to concentration of effort and coördination of methods for dealing with early mental disorder. This Bill gives power to the local authorities, through their mental hospital visiting committees, to provide out-patient clinics for persons suffering from mental disorders (Sec. 1 (2)), allows them to admit voluntary boarders to any of their institutions (Sec. 1 (3)), and gives them power to make provision for the after-care of patients discharged (Sec. 1 (4)).

In another section of the Bill power is given to the local authorities to make grants for research work. But here the public have the course of events in their own hands, for however willing and anxious the local authorities may be to carry out the provisions of the Bill, they will be powerless to accomplish much without the driving force of an enlightened public opinion. The public must be made to realise that the purpose of a clinic is to offer people all the advantages of a mental hospital without the necessity of entering as an in-patient. Moreover, they must be made to understand that the earlier treatment is begun the greater the chance of a permanent cure. Relatives, as well as the patient, would be saved much misery and ill-health by making use of the clinics at the first sign of nervous or mental instability. To ensure this there should be greater collaboration and more ready conference between the general practitioner, who may see the case in its initial stages, and the psychiatrist, who presides at the clinic.

The Mental Treatment Bill is of vital importance to the community and is a reform which should have behind it a genuine public interest, so that local authorities may spend the Government grants wisely and well; otherwise, progress will be slow, difficult, and costly. It should not be difficult for medical and social workers to reach the unstable elements in our midst, and to make adjustments by which they can often be prevented from needing the protection of an institution.

Education of the Public.

The secret of modern progress often lies in propaganda. In the United States of America and in Canada much has been done to educate the public and to enlighten them as to the best means of facing the problems of early mental disorders. In this country intensive propaganda is never likely to be carried to the extent which obtains in the States, where it has been brought to a fine art. We have recently had an example in which a persistent minority has forced and carried its views over the heads of an unwilling majority, the result being a remedy worse than the disease. But there is no reason why an organised propaganda in this country should not attempt to arouse the public conscience to its obvious duty in the matter of early mental disorder in the adult and defective mentality in the child. It should be the duty of every psychiatrist to educate the minds, not only of patients and their relatives, but also those of our medical brethren, to accept the fact that mental disorder is a common everyday illness, with which no stigma or sinister atmosphere should be associated.

Other countries, however, do not rely on propaganda alone. Attached to all mental out-patient clinics will be found the highly-trained psychiatric social worker. This again is a sphere of activity strongly developed in the States, where qualified

laymen and medical practitioners work side by side, the work of one being complementary to the other. For example, some State medical officers of health are not medical practitioners, but they must be doctors of hygiene or diplomates in public health. These qualifications are granted after a course of study and examinations, the possession of a medical degree not being an essential condition of entry. The social workers receive an equally intensive training. They are trained in colleges adapted for the purpose, and are selected because of their understanding of human psychology and physiology. They are expected to deal with the patient in his social setting as intelligently as the psychiatrist deals with him in the clinic.

Education of the Social Worker.

The selection and training of social workers is of the utmost importance, having regard to the intimate association they must cultivate with the patients if they are to appear to them as guide, philosopher, and friend. A social worker must not only possess a sympathetic nature, but must have that understanding of mental patients born of experience in dealing with them. Her grade in society must have brought her into contact with all sorts and conditions of people, and especially with persons connected with or interested in homes and institutions, and also with others charitably minded. It has to be remembered that she enters homes overshadowed with disaster, and without the entire confidence of the inmates she is not likely to probe beneath the surface of a subconscious and protective reserve. She must first of all win the coöperation of the patient, without which he will never feel himself really understood. The way will then be paved for obtaining a full history of his condition and the causes leading up to his mental state. For the first time, perhaps, he will feel the stimulus of hope, and her presence will be a moral support when he and his family realise that she is part of the scheme of things intended for his treatment and cure. His home surroundings and the social environment in which the family moves must be ascertained by direct questions, and where satisfactory answers are not forthcoming, a well-trained worker will be able by veiled but acute observations to discover any constant or deep-seated factor militating against the patient's well-being. Only thus will it be possible to readjust him to his normal surroundings.

It might be considered advisable to standardise inquiries up to a certain point, leaving the social worker to use her own discretion as to supplementary questions. As an indispensable link between the physician and the social world in which the patient has to live, she will be able by repeated visits to complete the clinical picture, especially the antecedent history. This applies more particularly to civilian patients without a definite cause for the onset of illness. Without attempting anything in the nature of a medical examination, she may in some cases be able to fix the cause of an anxiety neurosis of one sort or another. There may be domestic reasons for a fixed idea which the removal of a patient would end or mend. By repeated visits she would be able to ascertain his mental outlook, and with simple suggestion divest his symptoms of their terror. Apprehension would cease to trouble him and his economic efficiency would be increased; likelihood of relapses would be lessened.

The social worker by expanding her sphere of activity would render specially valuable help in the case of feeble-minded children and the young delinquent. By access to school teachers she would gain particulars as to a child's habits and reasons for backwardness at school. Mental twists and peculiarities of conduct would be noted, and how far re-education and a different environment might be likely to benefit the case upon the advice of the physician who has charge of it. By associating herself with special cases appearing before the police courts, and conferring with the missionary and probation officers, much profitable work could be carried out and useful data collected. One of the items on the programme of the National Council of Mental Hygiene is the promotion of social service in connexion with out-patient clinics, and it is to be hoped that in time at least one such worker will be attached to every out-patient clinic for nervous disorders.

Conclusion.

In reviewing the vast, complex, and far-reaching problem of early treatment, it must at once be acknowledged that the medical or scientific side, although falling short in a large measure in the past, is now attempting to supply its full quota of help. However, this is not a solution to the difficulties; it merely serves as a half-way measure, and we must now penetrate as explorers still further into the jungle of life, in order to succour or even extricate the weary or fallen wayfarers, who, from a lack of mental and physical equipment, have been unable to journey through the tangled undergrowth of disharmonies. Fundamentally, the problem as detailed above proves itself to be one not only beset with obstacles, but also presenting a promising outlook, and, in order to ensure success, must of necessity resolve itself into a question of mental hygiene backed up by the vigorous support of eugenics and euthenics. It would now appear that we have reached a stage of civilisation when social organisation is increasingly urgent, especially when one faces the fact that social evolution is taking place at an extremely rapid rate.

All those who are interested in the question of early treatment must welcome with open arms the inauguration of the National Council of Mental Hygiene. This body has wisely elected to its executive men and women who from their training and experience are well qualified to undertake the intricate and onerous task of social readjustment in so far as it concerns the mentally unstable. To their activities we shall look with great interest and with the fervent anticipation that a really practical and coördinated scheme will be formulated to improve and facilitate the working principles which at present exist. We thus hope that by their help out-patient clinics will be linked up in closer association with the executives of the general hospitals, mentally defective organisations, and after-care associations.

A NOTE ON
ACUTE *BACILLUS COLI* INFECTION OF THE GASTRO-INTESTINAL TRACT
IN THE NEW-BORN CHILD CONTRACTED FROM ITS MOTHER.

BY R. CHALMERS, M.D. ABERD., F.R.C.S. EDIN.,
ASSISTANT SURGEON, GREENBANK HOSPITAL, DARLINGTON.

IN the issue of THE LANCET dated July 21st, 1923 (p. 118), Drs. R. C. Jewesbury and L. S. Dudgeon reported a most instructive case of this infection with the fullest details. In view of the correspondence that has taken place with regard to Lady Barrett's article on "The Prophylactic Treatment of Puerperal Sepsis" [1] in which she emphasises the need for clearing up all foci of infection in the mother before confinement—I should like to point out to all who have disagreed with her article, first, how this case confirms Lady Barrett's contention, and, secondly, that this is one of a series of articles on "*Modern* Technique in Treatment."

My attention was drawn to the above articles by a conversation I had—while waiting on a confinement—with the matron of a nursing home who keeps herself abreast of the times by taking THE LANCET I had expressed the opinion—from recent observation of several cases—that I believed a great deal of the gastro-intestinal disturbances of early infancy was

[1] THE LANCET, 1923, i., 1279.

the result of a toxæmia in the mother, acting on the fœtus in utero. Early jaundice, flatulence, vomiting, and difficulty in finding a suitable diet were always more in evidence in children of mothers who were in a toxic state while carrying. Whether the infection is ante-natal, during birth, or post-natal it is often difficult to say, all three seem to be possibilities. The combination of a streptococcal infection with a *Bacillus coli* is another point I have been coming to; for I believe there is often a double infection in the mother in these cases—the streptococcal infection being primary and the *Bacillus coli* infection secondary.

The following cases have a bearing on the discussion.

CASE 1.—Married woman. Admitted to hospital about fourteenth day after confinement with history of rigors. Temperature and swelling of legs (phlebitis) occurring three or four days previously. Uterus douched but nothing abnormal found. Temperature 101° F.; hæmoglobin 70 per cent. Tongue dry; marked insomnia, headache, and anorexia. *Bacillus coli* in urine; unclassified diplococcus (? strepto-diplococcus) found in blood. Treatment with potass. citras. and catalysers; distinct improvement in a few days; natural sleep, headache gone, ravenous appetite, feeling of well-being, *but* an acute gingivitis with pus developed at the gum margins.

CASE 2.—Married. Suffered from liverishness. Later had appendix removed. Still not feeling well. Two attacks of basal pneumonia with pleurisy within a year. Later became pregnant. Child jaundiced on second day after birth. Very flatulent, sick, vomiting of mucus and food; ill for several weeks. Always troubled with an atonic condition of rectum. Later mother showed pyorrhœal condition for which a total extraction was done. This was followed in three days by a recurrence of pneumonia and pleurisy. A vaccine made from the sputum, which contained large numbers of streptococci, pneumococci, and *Micrococcus catarrhalis*, cleared up the condition. No note as to *B. coli* in urine.

CASE 3.—Married woman. Suffered from severe fibrositis and sciatica. Later had her appendix removed. Then on becoming pregnant developed a most intractable urticarial condition. Child most difficult to rear. All kinds of digestive disturbances. This patient has a recurrence of her skin irritation on becoming pregnant again. Marked streptococcal apical infection of the teeth all the time. No note as to *B. coli* infection.

CASE 4.—Married woman. Suffered from very intractable constipation. On becoming pregnant showed a marked *B. coli* infection of the urine. About ten days before confinement had an acute exacerbation of the urinary condition with temperature, constitutional symptoms, marked insomnia, backache, &c. Child became extremely jaundiced with marked flatulence and digestive disturbance on the second day after birth. Streptococcal foci present in the teeth.

CASE 5.—Married woman, aged 50. Sallow complexion, with dark rings below eyes. Typical poisoned facies.

Previous History.—Suffered from what was called a rheumatic rash on knees and elbows (erythema papulatum) seven years before. Some years later suffered from a rash on hands which was called erythema multiformæ and was diagnosed as due to contact with ivy. In autumn of same year (now two years ago) she suffered from herpes of nerves supplying the external genitals. Still later began to notice a blood-stained uterine discharge.

Condition on Examination.—A discharge was seen coming from the cervix with slight congestion of the os uteri, but no erosion. A large tumour could be felt posterior to the uterus.

Operation.—The tumour on removal proved to be a large parovarian cyst; the uterus and tubes appeared normal.

Course of Case.—About the tenth day after operation she developed a rise of temperature with swelling (phlebitis) in left leg. This had been preceded by marked gastro-intestinal disturbance, flatulence, anorexia, and great depression. Urine revealed oxalates, indican, but no *B. coli*. The uterine discharge returned. After about six weeks of rest and douching and not much improvement in leg or uterine condition, a search for a focus of infection was made. Although the three teeth she had remaining had been examined previously and passed as healthy, on re-examination small pockets were found in the gingival margin. Extraction of the teeth revealed marked streptococcal infection of the periodontal membrane.

Bacteriological Report.—The bacteriological examination of a swab from the cervix showed heavy infection with *B. coli* and streptococci; fæces showed *B. coli* of Friedländer type and excess of streptococci (unclassified).

CASE 6.—Age 45. Had a uterine polypus removed. Suffered from constipation and *B. coli* infection of urine with associated debility and anæmia. Later, after vigorous manual exercise, suddenly developed a painful swelling in breast (lobular mastitis). This settled down with rest and autogenous vaccine for the *B. coli* infection. None of her own teeth. Previous condition of mouth not noted.

CASE 7.—Aged 40. Had suffered from neuritis and rheumatoid arthritis for past three years. Frequent liverish attacks with flatulence. Had her appendix removed. Later *B. coli* infection of urine, then colitis, followed by interstitial mastitis for which the breast was removed. Still later an acute inflammation of fauces and tonsils with recurring epistaxis. No virulent organisms present on report from swab taken. On re-examination of teeth (X ray and bacteriological) showed marginal pyorrhœa and marked streptococcal apical infection.

Summary.

Case 1 shows the connexion between *B. coli* and most likely streptococcal infection, the latter probably arising from the gums.

Case 2 shows the streptococcal infection of the mother with marked toxic effects on the child. Note the rectal atonic condition of the latter—a symptom I believe to be due to the streptococcus poison. Parenthetically it also shows the risk of complete dental extraction in a patient with marked toxæmia. Important are Sir William Willcox's warning on this point—viz., that the presence of a leucopenia is a danger sign—and Sir Almroth Wright's explanation of the possibility of the leucocytes being poisoned to such an extent as to lose their phagocytic power.

Case 3 shows the effects of toxæmia in the mother—arising from a streptococcal infection—where the extra strain of child-bearing upsets the defensive powers of the body. Also, the prolonged digestive disturbances in the child are probably the result of the ante-natal toxæmia.

Case 4 shows the relation of *B. coli* injection in the mother with marked jaundice and prolonged gastro-intestinal symptoms in the child.

Case 5 shows evidence of a toxæmia going on for a period of years, as evidenced by the skin rashes, followed by a herpes zoster, which is said to be due to a streptococcal infection of the posterior root ganglia. The fact that it is the nerves of the external genitals that are involved in the herpetic eruption and that the genital organs later show morbidity is probably more than a coincidence.

That the uterine discharge contains streptococci and *B. coli* shows the possibility of the child becoming infected with mucus in its sojourn in the maternal passages. The focus of streptococcal origin seems to be the teeth, and it appears that the uterine mucosa often acts as an excretory organ for these organisms or their toxins. It may seem very unorthodox, but I am inclined to think that many of these uncontrollable menorrhagias with redundant mushy endometrium, and fibrosis uteri, and even carcinomatous changes, are often due to some toxic factor arising in this way in the system. Witness the association of mastitis (fibrosis) in Cases 6 and 7. One with streptococcal infection; the other with *B. coli* and uterine polypi.

Relation of Reported Cases to B. coli *Infection in Infants.*

Streptococci and *B. coli* have been present in several of the cases reported. So also in the mother of the case reported by Dr. Dewsbury. She evidently was in a very toxic state—her heart probably bearing part of the brunt of the poison. She was excreting streptococci by the breasts and in urine and lochia, and *B. coli* by urine and lochia. One wonders whether she had not some focus for her streptococcal infection in mouth or throat. If the biological history of a large number of intestinal diseases is investigated, it will very frequently be found that a clue to many of these cases is the presence of streptococcal infection in mouth, naso-pharynx, or sinuses. I believe that a great number of these *B. coli* infections are stirred up, or their exit from the intestinal tract made easier—by the injury inflicted upon the intestinal mucosa by the streptococcus or

its poison. I believe, too, that the neuro-muscular paresis with resulting stasis is caused by the streptococcal poison and consequent putrefaction. Just as in some intractable staphylococcus infections no improvement is obtained until a co-existing streptococcal focus is cleared up, so also with *B. coli* infection; I believe there to be a symbiosis between them. Perhaps this is one of the reasons why Mr. D. P. Wilkie finds such benefit from prophylactic infections of the combined vaccine prior to operations on the lower intestinal tract.

Although the condition of the mother amounted to a bacteriæmia, no organisms were reported from the blood examination. Kidd, however, has shown that the *B. coli* germs can be found in the blood-stream if the blood is examined about the time of the rigor. There is no mention of the child being jaundiced as one would expect if the infection was from swallowing of infected mucus. It seems to have developed on the third day, after several feeds of breast-milk which was heavily infected with streptococci.

The two cases of mastitis (Cases 6 and 7) show the affinity of the streptococcus and *B. coli* germs (or their toxins) for breast tissue; also the affinity of these organisms for the physiologically associated organ, the uterus—as in Case 5.

Darlington.

THE TREATMENT OF SPRUE

BASED ON A NEW THEORY OF CAUSATION.

BY H. HAROLD SCOTT, M.D., M.R.C.P. LOND., D.P.H., D.T.M. & H. CAMB., F.R.S. EDIN.

From the London School of Tropical Medicine.)

EARLY in 1923 my preliminary communication on a New Theory as to the Causation of Sprue was published in the Transactions of the Royal Society of Tropical Medicine and Hygiene. By the kindness of the physicians to the Hospital for Tropical Diseases, Endsleigh-gardens, I have within the last few months been given opportunity for putting the treatment based on that theory to the test in several cases with such marked success that I think the time has come to place a few of them on record and to speak in a little more detail of the theory and its application.

Sprue is a disease which appears to be considerably on the increase in recent years, especially in the East; it leads to much sickness and incapacity, is the cause of extensive invaliding from the tropics, and is responsible for not a few deaths. Treatment of the disease is almost entirely empirical and the results very uncertain, return to the tropics being, in a large majority of cases, followed by relapse usually within a short space of time.

CASE 1.—Male, aged 48, born in England; in South Africa 1902–05, in the West Indies (Jamaica) 1910–19, in China 1919–21. With the exception of an attack of enteric fever in 1918 he enjoyed excellent health until the onset of symptoms of sprue in 1920. During the next 18 months practically every known form of treatment was tried—milk, the Salisbury diet, liver soup, emetine injections, vaccines, yellow santonin, with only temporary benefit, any attempt to pass on to ordinary diet causing a relapse. This case was severe, all the typical symptoms being present—acidity, flatulence, marked mouth symptoms, large, pale, frothy, pultaceous motions, troublesome cramps in the limbs, loss of over 3 stone in weight. At one time, apart from general tenderness of the tongue, there were over 30 aphthous patches on the tongue, frænum, and buccal mucous membrane, and, judging from the pain on swallowing, probably along the œsophagus also.

New Treatment.—The patient was invalided to England, arriving March 22nd, 1922, and was taken into hospital the following day. Improvement followed a strict milk diet, but within six weeks of leaving hospital a relapse occurred in July, another in September, and a third in December, by which time the condition was almost as bad as it had ever been. There was troublesome acidity, with aphthæ in the mouth, a tender, raw, red tongue, and cramps. The weight had decreased by nearly 2 stone; the stools, which had become a little darker in the intervals between the relapses, though never normal, were again pale, large, and frothy. Calcium lactate, 10 gr. in cachets, was given twice daily, the dose being increased to 15 gr. a few days later, and then thrice daily. Some improvement followed, but in another fortnight, in spite of the continuance of the calcium, matters returned to their former state. Blood tests showed that the total calcium content was not diminished and the inference was that, if the calcium was at fault, the error lay somewhere in its regulation and metabolism. On Jan. 8th, 1923, the calcium lactate was reduced to 10 gr. three times a day, and a small dose, 1/20 gr. parathyroid extract (Parke, Davis and Co.), morning and evening. The symptoms were checked, but there was no definite improvement, so on the 16th the latter dose was increased to 1/10 gr. twice daily. There were then four very painful aphthæ in the mouth and a small tender papule. The latter usually preceded the ulcer stage by 48 hours or so. By Jan. 22nd the papule had not developed, but had disappeared, three of the ulcers had completely healed, and the other, the largest, was nearly well and was no longer painful, and the tongue was very slightly tender. Two days later the stools were formed, brownish in colour, and rarely more than one a day. There was a feeling of well-being, and there had been no cramps since the 20th. On Jan. 30th the parathyroid was reduced to half the dose, and the diet, which had been restricted to milk till the 24th and milk puddings subsequently, was increased to include fish, chicken, and vegetables. By Feb. 10th ordinary full diet was being taken, and on the 12th both drugs were discontinued. There had been no fresh aphthæ or cramps, and the stools were formed and almost normal in colour. The weight rapidly increased, and by March 10th had reached 2 lb. above the normal for the previous 15 years. Since then the patient has been on ordinary diet, doing full work, and there has been no set-back whatever, nor sign of any relapse.

This case has been recorded fully because it was the first in which the new treatment was tried. The remainder may be described more briefly.

CASE 2.—Female, aged 40, married, two children. Born in Ceylon, came to England at the age of 12 years, returning to Ceylon in 1912 and staying there for three years, during which period she had an attack of dysentery and of dengue. In 1919 she went again to Ceylon, and had good health until May, 1921, when she suffered for a week with a sore and tender tongue. For the succeeding two months she was free from this, but thereafter had frequent recurrences, together with indigestion, heartburn, and flatulence, with large, pale, frothy stools.

New Treatment.—This state of affairs continued until September, 1922, when the patient was sent to England. A week later her condition was recorded as follows. Tongue sore, tender and red, with ulcers on frænum, cheeks, and gums, motions large, pale, frothy, especially in the early morning, but not infrequently during the day also. She was treated at home by restriction to milk diet, but though the number of motions was reduced they remained very pale, and the weight steadily diminished. She came into hospital on Feb. 15th, her weight then being 107½ lb. She was given calcium lactate, 10 gr. t.i.d., with parathyroid, 1/10 gr., morning and evening, together with a plain milk diet; in a week the aphthæ had cleared up and no fresh ones had appeared. The stools on admission were typical. At the end of the month—i.e., a fortnight after starting the treatment—the colour was coming back in the stools, though they were still pale. She was then given Benger's food in addition, and the heartburn and flatulence returned, but ceased when the food was taken off. The weight improved, and by March 11th was 111¼ lb., and she was taking biscuits, fish, milk puddings, and eggs. She left hospital a fortnight later. All medicine was stopped during the first week of April. The weight continued to increase till it reached her normal (9 stone), and there has been no return of symptoms.

CASE 3.—Male aged 62. Born in Scotland: went to the tropics (San Domingo) in 1888. In 1896 suffered from "ulceration of the mouth," which cleared up with local treatment. He had yellow fever in 1896; and returned home in 1898. Was in the West Indies again in 1905, 1910, 1912, and 1921. In 1909 he suffered from recurrent attacks of diarrhœa, with a tender and painful tongue and loss of weight. These symptoms recurred intermittently for the next 11 years. By 1921 the diarrhœa was persistent; the condition was diagnosed "intestinal catarrh," but did not yield to treatment. The following year a specialist diagnosed "chronic pancreatitis," but no treatment proved of any avail. In 1923 a third physician told him that the disease was sprue, and he was put to bed on strict milk diet. He remained there for four months; the diarrhœa was checked in some degree, but returned whenever an increase in diet was attempted. For two months he lived on milk and strawberries and thinks he benefited at first, but a relapse came on while this diet was being continued.

New Treatment.—On May 11th he came to the Hospital for Tropical Diseases, and, by the kindness of Dr. P. Manson-Bahr, I saw him. He started the calcium lactate and

parathyroid treatment on May 13th. The symptoms were typical—a sore and tender mouth and tongue, acidity, flatulence, large, pale, pultaceous stools. Within a week the diarrhœa ceased, the motions were formed, and the colour brownish. In a fortnight he was taking eggs, toast, Mellin's biscuits, milk puddings, baked apples, and bananas. Progress was uninterrupted, and he left hospital in June, having put on over a stone in weight. He went to stay at a hotel in Tunbridge Wells, and in September wrote to me saying that, as directed, he had gradually reduced the medicine and stopped taking it four weeks after leaving hospital, and had not had to return to it. "My diet," he writes, "has been just the same as that of everybody else in the hotel. . . . It seems to suit me quite well. . . . My weight has increased by another 4 lb., and I feel well." After five weeks in hospital he has apparently recovered from a disease which has troubled him for over 14 years.

CASE 4.—Male aged 21. Contracted sprue in India; in July, 1922, at Bombay, he suffered from diarrhœa with large, pale, porridge-like stools, indigestion, acidity and flatulence, and a raw tongue. This continued; he went to Simla in March, 1923, having then four or five of these motions daily. Emetine injections were given without producing any benefit.

New Treatment.—He was invalided to England, arriving June 7th. On admission to a nursing home he showed: Tongue raw, red and tender, fungiform papillæ prominent, abdomen distended, especially the lower part; he was passing very large stools (26–30 oz.), pale, frothy, and loose. Weight on June 19th 111 lb. He started calcium and parathyroid treatment on June 12th. By the 21st the soreness of the tongue had disappeared, and there were no dyspeptic symptoms after the 24th; by the 26th the stools were light brown in colour, only one a day, and the weight of them varied between 6 and 13 oz. He expressed himself as feeling very much better generally. At the end of the month he was well enough to go out for walks daily. His weight in successive weeks from June 26th to July 23rd, when he left the nursing home, was 112, 113, 118, 122½, and 128 lb. He ceased taking the medicine a fortnight later, and reported two months afterwards; he then looked and said that he felt thoroughly well; he was taking full diet, his weight was 154 lb., and he is about to return to India.

I have notes of six other cases, but to record them in detail would be practically a repetition of the above. The following case, however, ought not to be omitted as a set-off against the almost uniform success obtained in cases treated up to the present. This patient was in extremis when first seen, and the treatment was tried solely to satisfy the heart-rending request of the patient's husband that "something might be done as she seemed to be dying." Even here an unexpected temporary improvement followed:—

CASE 5.—Female aged about 50. Had suffered from sprue for many years; was in hospital on that account five years ago and improved, but relapsed very soon afterwards and had never been well since. Normal weight about 126 lb. When seen on April 14th she said she felt very weak, and her weight was only 79 lb.; her mouth was very sore, there were several aphthæ, and she was taking hardly any nourishment at all because of pain and weakness. She was intensely anæmic and very short of breath. She was passing five to six motions daily, pale, bulky, pultaceous, and frothy.

New Treatment.—She was at once put on the calcium and parathyroid, and a week later expressed herself as feeling "better in herself" than she had done for many months; stools three daily, less bulky, some formed, becoming darker in colour, not frothy; the flatulence was much less troublesome, and the ulcers in the mouth had cleared. In another week the stools were reduced to two or three daily and were more formed. Although she said she felt better and would like to get up, she was too weak and was obviously losing strength. Her weight on April 28th was only 73 lb. She became progressively weaker and unable to take nourishment, and died a few days later.

Remarks.

The average stay in hospital of the cases recorded above has been five to six weeks, and none so far have relapsed. The intervals since cessation of treatment vary between two and eight months. This is in marked contrast with the usual histories of as many months in hospital as weeks in the above cases, succeeded by a prolonged period of restricted diet and a constant tendency to return of symptoms, if not, as in many cases, an actual relapse.

The theory, as stated in my preliminary communication referred to above, is this: In the endemic areas of the disease conditions are such that there is an excessive proteid diet (in India, Ceylon, and other parts of the East), or a diet containing an excess of fat largely contributed to by the method of cooking the food (in China and the West Indies). Excess of proteids stimulates over-production of acid in the gastric juice and may lead to habitual over-acidity. The entrance of acid into the duodenum stimulates the production of secretin, which in turn leads to over-stimulation of the pancreas, and, secondly, to an upset in the balance of other endocrine glands, among them the parathyroids and salivary glands. Evidence is accumulating that endocrine disturbance and alimentary toxæmia are frequently associated, and all acute and chronic toxæmias react in some degree on the parathyroids, causing disturbance of calcium metabolism and a consequent decrease in tissue resistance, a vicious circle being thus set up. It will be of interest to speak of a few of the chief questions here raised in a little more detail.

1. *Evidence of Over-stimulation of the Pancreas.*—In the fæces the ratio of neutral fats to fatty acids is normally as 1 is to 2. In cases of pancreatic disease and insufficiency this relation is more than reversed and may be as high as 15 to 1. In conditions of increase of pancreatic action one would expect a greater splitting up of neutral fats and the proportion of these to fatty acids would be less. Now, in a mild case of sprue, the proportion is found to be as 1 : 3 or 1 : 4; in a moderately severe case as 1 : 4 or 1 : 5, and in graver cases even up to 1 : 9. Confirmation is also obtained clinically. In several instances, as improvement took place, the nutriment was increased by the addition of pancreatised food with the idea that this would help digestion and enable the patients to put on weight. Within a very short time—in some at least, especially in those with hyperchlorhydria—symptoms reappeared, and such patients have again and again stated that they wished to go back to milk as they felt worse after each meal of this food. Again, the work of others has shown that the internal secretion of the pancreas reacts on other endocrine glands and on the salivary glands. I suggest that the sore and aphthous condition of the tongue and mouth may in part be due to altered salivary secretion, for the reaction of this in severe cases is acid to litmus. The glossitis and stomatitis are also ascribable to alimentary toxæmia (see below). In Case 1 it was a notable feature that a bout of excessive acidity preceded an aggravation of the mouth condition, and a fresh crop of sore spots would appear within 48 hours.

2. *Evidence of Errors in Calcium Metabolism.*—This term is preferable to "calcium deficiency," because in the majority of cases in which blood-calcium estimations were carried out the *total* calcium content was approximately normal. Decrease of calcium, as the researches of Vines have shown, may be of two types: It may be absolute when the total amount in the serum is lessened, or it may be relative when the total is unchanged but some of the calcium is bound, so that the complex formed is not assimilable by the tissues. In either case the effect on the somatic cells is the same; they suffer from a deficiency of calcium which they can utilise. The "ionic" calcium of the blood becomes deficient in cases where chronic toxæmia is present, and this is what, in my belief, occurs in sprue. The striking factor common to the tetany, cramps, œdema (in severe cases), the loss of weight, excess of excretion of calcium salts in the fæces, the ulcerative condition of the alimentary tract is their relation to deficiency or faulty metabolism of calcium. As stated, the total calcium proved normal or nearly so in the cases tested, and the coagulation time is not extended, so that the probability is (further tests are to be carried out to confirm this) that there is a change in the normal relations of the "ionic" calcium to the "coagulative" or "combined." When calcium is administered in sprue the increase makes up temporarily for the deficiency and the symptoms improve, but it was found repeatedly that

this improvement was transient, and the dose had to be increased. The total calcium of the blood being about normal, one naturally inferred that it was the regulation of the calcium which was disordered; accordingly, the dose prescribed was reduced, but parathyroid extract was given at the same time, with the results detailed. The parathyroids have two functions, (1) detoxication, and (2) control of calcium metabolism; but these cannot be rigidly separated. The action of parathyroid substance is physiological and is not apparently specific against any one organism or toxin. "Its action is to place the tissues of the patient under conditions more suitable for the performance of their normal functions and for combating the effects of toxic processes"; also "when there are lesions due to such (toxic) states healing does not commence until the ionic calcium of the blood approximates the normal figure" (Vines). Hence, the rationale of the treatment above—bed, on a diet of milk (partly because of the ulceration, partly because of the calcium content), and the administration of calcium and parathyroid until the mouth ulcers are healed, when one may infer that the intestinal ulcers are on the mend also, and an increase in diet is then allowed. It is essential that the parathyroid should be guaranteed. The antagonism between thyroid and parathyroid is well exemplified in this disease. If an impure product is used the symptoms return almost at once.

3. *Evidence of Alimentary Toxæmia.*—This condition is practically self-evident. The acidity, the flatulence, the secondary anæmia, sometimes of severe degree, and the ulcerative state are all indicative of this. Further, the bacterial examination of the fæces reveals unusual organisms, monilia in one case, special forms of streptococci in another, aberrant coliform bacilli in a third. Such toxæmic conditions react, as Vines has shown, on the parathyroids. Possibly the special organism isolated constituted, as it were, the last straw which broke down the function of the over-worked parathyroid, and hence the benefit reported by some from the injection of autogenous vaccines in sprue cases (see below).

A few words may be written relative to the modes of treatment chiefly in vogue at present.

(*a*) *Milk.*—This, as already stated, constitutes a non-irritating food, allows the ulcers to heal, and is a good method of administering calcium. During the first fortnight or so it is practically the only food under the form of treatment indicated in the present paper, and nothing further need be said.

(*b*) *Salisbury Treatment.*—This diet, consisting of scraped meat and hot water, would probably act best in cases associated with hypochlorhydria, as by a radical alteration of diet it may bring about a change in the intestinal flora and so remove the source of the toxæmia. The régime is persisted in for six weeks or so, and then an increase of diet is very cautiously permitted with warnings to return to it at the first sign of recurrence of symptoms. Cure is rarely prolonged.

(*c*) *Emetine Injections.*—Emetine was probably given primarily because many cases give a history of previous dysentery. Its action as regards sprue in those cases which have come within my cognisance has been nil.

(*d*) *Liver Soup.*—This is perhaps given on the erroneous idea that, because the stools are pale, bile is absent and the liver is not acting; the prescription is analogous to that of ovarian extract for sterility, and similar barbaric empiricisms. Some writers, it is true, report good results, but we must bear in mind the fact that it is usually given with milk and other nutriment, while no reason has been given for ascribing any specific beneficial effects to the soup.

(*e*) *Vaccines.*—These, as has been pointed out, probably prove beneficial (in the rare instances in which they do so) by putting out of action the chief organism responsible for the toxæmia and so relieving the overworked detoxicating function of the parathyroid. This gland is again enabled to cope with its work, but the effect of vaccines is uncertain and relapses are common. Thus may be explained the fact that the vaccines employed and found beneficial are so varied, one finding a streptococcus of some sort, another a monilia, a third some form of *Bacillus coli*. Those of the above-recorded cases who had had vaccines derived no benefit at all; moreover, these organisms are probably only subsidiary, because nearly all the above cleared up without the use of any vaccine, with great rapidity, as the histories show, and so far there have been no relapses.

(*f*) *Strawberry Cure, and* (*g*) *Santonin.*—These are given empirically. I know of no rational explanation of their actions. They are never employed alone, so it is difficult to say, in fact it is merely a matter of conjecture, as to what degree the amelioration, if it occurs, is ascribable to the fruit or the drug.

Finally, though the clinical results have been so fortunate, there are several questions as to the pathogeny of the disease still calling for elucidation. Such, for example, as:—

1. Why does not the disease occur in Europe? Possibly it does.[1] Pellagra was for a long time overlooked in this country. All of the cases of undoubted sprue which I, personally, have seen have resided abroad, though some had returned from the tropics several years prior to the onset of symptoms. But the condition spoken of as cœliac diarrhœa bears a strong resemblance to sprue—the loss of weight, the bulky, pale, frothy stools, the flatulence, and dyspepsia. One patient who had suffered for months in this way was put upon the same line of treatment as that indicated above and told to report again later. She, however, sent word to say that the symptoms had cleared up in less than a fortnight, and that she felt well, but would come again should the symptoms recur. Several months have elapsed, but there has been no recurrence.

2. Why are no cases reported from Africa? Whether the disease is really unknown in Africa I am not able to say, but none have come to my knowledge.

3. What changes take place, or fail to take place, in the bile to bring about the pale colour of the stools? It was formerly believed that this was due to absence of bile, but chemical examination shows that bile is not absent but is present as leucourobilin, and the gall-bladder contains normal-coloured bile.

4. Are there two distinct classes of sprue? As already mentioned, cases arising in India and some other parts of the East are often associated with an excess of proteid diet and hyperchlorhydria; these are the patients who complain most of a recurrence of symptoms when given food with liquor pancreaticus. Others develop on a fatty diet with organic hyperacidity and hypochlorhydria. Both suffer from dyspeptic and toxæmic symptoms, and so both do well on the calcium and parathyroid treatment, but the latter can take pancreatised food, sometimes at least, and it would appear, therefore, that in both there is intestinal toxæmia with upset of calcium metabolism and parathyroid function, but that in the former there is in addition the endocrine disturbance secondary to pancreatic over-stimulation. If organic acids (and not merely inorganic, as hydrochloric acid) can also bring about excessive production of secretin on entering the duodenum, then this difference vanishes.

It will be of interest to know whether similar felicitous results can be obtained when the treatment is carried out on patients in countries where the disease is endemic.

References.

Grove, W. R., and Vines, H. W. C.: Brit. Med. Jour., 1921, ii., 40, 687; 1922, ii., 791.
Manson-Bahr, P. H.: Researches on Sprue in Ceylon, 1915, p. 96.
Scott, H. H.: Trans. Roy. Soc. Trop. Med. and Hyg., Feb. 15th, 1923.
Vines, H. W. C.: Jour. Physiol., 1921, lv., 86; Proc. Roy. Soc. Med., 1922, xv., 13–18; New York Med. Jour., April 4th, 1923.

[1] Van der Scheer states that it does occur in Holland and Germany.

CONGENITAL DISLOCATION OF THE HIP: A NEW APPARATUS.

BY JOHN GILMOUR, M.S. DURH., F.R.C.S. ENG.,
HON. SURGICAL REGISTRAR, ROYAL VICTORIA INFIRMARY; HON. ASSISTANT SURGEON, SICK CHILDREN'S HOSPITAL, NEWCASTLE-ON-TYNE.

IT is the custom at the present time to treat congenital dislocations of the hips, after reduction, by a plaster-of-Paris apparatus. There are objections to this method. In the conduct of a normal case this has to be removed and a fresh plaster applied for each new position into which the hip-joint is brought as the treatment proceeds. Apart from the time and skill required of the surgeon in charge of the case, great care is demanded in the nursing of the child in the intervals. A plaster apparatus is at any time a cloak which hides most effectively all that is underneath, and in the treatment of congenital dislocations of the hips this is undesirable both from the surgeon's point of view and from the mother's. It cannot be said, for instance, that the plaster, when applied, is proof in all cases against subluxations; for when the inevitable muscular atrophy sets in it is apt, unless frequently inspected and reapplied when necessary, to fit loosely round the joints and to allow room enough for the dislocation to recur.

Nor does the plaster permit of easy radiographic examinations; on the contrary, it fogs all such procedures, and is most troublesome when it prevents the ready detection of minor degrees of recurring dislocation. From a hygienic point of view it leaves much to be desired. Such plasters are apt to become impregnated with urine or fæcal matter, when they smell, and soften and fray at the edges. I have also known them to harbour lice. The risk of bedsores is real, and ordinary care of the skin is difficult. Massage to the encased limbs is practically impossible, so that as plaster succeeds plaster the limbs shrink more and more, and only a prolonged course of after-massage can restore the tone of the weakened muscles.

With the object of improving these several defects I have tried to replace the plaster apparatus by a mechanical one which would be of use throughout the period of treatment. To be efficient this should (1) be applicable to all the positions required in the treatment of congenital dislocations; (2) effectively control tendencies to redislocation; (3) not interfere with X ray examinations; and (4) permit of easy access to the surface of the limbs for nursing purposes and massage. The appliance consists of a body-frame and two jointed thigh-pieces which fix the lower limbs at the angles required.

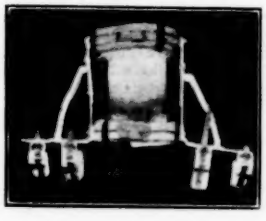


FIG. 1.—Both thigh-pieces fixed at 90° abduction and 90° flexion.

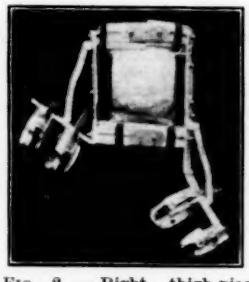


FIG. 2.—Right thigh-piece abducted to 90° and flexed to 50°. Left thigh-piece at 45° abduction and 150° flexion.

Body-frame.—Two light slotted metal bands which encircle the thorax and the pelvis are fixed behind to the upper and lower extremities of two flat metal bars set vertically about 3 inches apart. This constitutes the frame. It is padded to protect the patient from pressure both behind and within the encircling girths, and the pads are covered with leather. Double nuts and screws are used to fix the horizontal bands, and there is always ample room for respiratory movements.

Thigh-pieces.—Each thigh-piece is formed from two bars of metal of equal length to those of the frame, which are united end to end by a simple hinge-joint. The upper bar or arm serves a double function; it fixes the thigh-piece to the frame and can be moved along the slotted bands of the frame, to which it is fixed by screws and nuts, thus supplying varying degrees of abduction, ranging from 0° when fixed in front, to 90° when fixed at the side. When fixed it also adds to the rigidity of the apparatus. The lower bar or arm bears two leather-covered metal bands which strap on the thigh above and below the mid-point of the femur. Control of the thigh is thus obtained, and by fixing the angle at the hinge-joint the degree of flexion at the hip-joint can be securely maintained.

FIG. 3.—The apparatus in place on a patient with double dislocation.

Two methods of fixing the hinge-joint of the thigh-piece at any angle, from 45° to 180°, are applicable (1) by means of a lattice screw-joint, and (2) by using a cross member. The former is a beautiful piece of mechanism, giving nice adjustments of the angle, but is rather an expensive addition. The latter is simpler and inexpensive, and fulfils all ordinary requirements. It is the method adopted here, and consists of a piece of metal with swinging flanges at each end. One of these is fixed to the centre of the lower bar of the thigh-piece, whilst the upper can be screwed to the upper bar at any point in its length, there being a series of perforations in it through which the screw can be passed. As this end is moved up or down, the angle is diminished or increased. Flexion to correspond with the axillary position is as readily obtained as right-angled flexion or smaller degrees. The patient shown in the illustration has had her right thigh thus fixed, though it is now possible for her to assume an angle of flexion of 80° without subluxation.

In Fig. 1 both thigh-pieces are fixed at 90° abduction and 90° flexion. In Fig. 2 the right thigh-piece is shown abducted to 90° and flexed to 50°, whilst the left thigh-piece is in a position of 45° abduction and 150° flexion. In Fig. 3 the apparatus is shown on a patient in the Sick Children's Hospital, Newcastle-upon-Tyne, who had a double dislocation and came under treatment when 4½ years old. The left hip gave no trouble; the right hip showed a constant tendency in plaster to subluxate, but this has now been corrected. It will be noticed that double pieces of metal have been used for the upper arm of the thigh-piece and that the hinge-joint on the left in Figs. 2 and 3 is dropped below that of the right. This is only possible if double bars are used, and is only needful if one hip has to be kept flexed up to less than a right angle longer than the other. The tight structures round the lower part of the highly flexed hip-joint tend to drag the opposite side of the pelvis downwards away from the pelvic band; consequently also to remove the opposite hip-joint from its true relation to the controlling thigh-piece. By lowering the angle of the hinge to a corresponding degree its distance from the hip-joint is kept constant, and the lower bar retains the thigh at the fullest correction. The apparatus is easy to control; it is comfortable and cleanly; it is lighter than plaster as usually applied. Easy access is provided to the child's limbs, and the buttocks and perineal region are left free. It permits of untrammelled radiographic examinations and is moderate in price.

I have to thank Mr. F. G. Hilliard, instrument-maker, Gosforth, Newcastle-on-Tyne, for care and patience taken in making the apparatus.

HIGH BLOOD PRESSURE.[1]

BY E. M. BROCKBANK, M.D. MANCH., F.R.C.P. LOND.,
PRESIDENT OF THE MANCHESTER MEDICAL SOCIETY.

BY high blood pressure I mean arterial tension which resisted a pressure equivalent to 160 or more millimetres of mercury before the pulse-wave was obliterated, the normal being 120–140 mm., as estimated by a sphygmomanometer of the arm-band type, or the compact portable little instrument invented by Leonard Hill, which has the great advantage that, being applied only to the anterior surface of the wrists, it does not cause the unpleasant sensations of the band instrument in sensitive women, and it does not induce threatenings, let alone an actual attack, of angina pectoris as an arm-band instrument may do. I am not about to relate any scientific observations, but to give you the chief, if discursive, impressions gained from carefully looking over my notes of the last 160 cases of patients with blood pressure above 160 mm., with and without obvious organic disease; to consider the various, and generally unsatisfactory, methods of treatment; and especially to mention a new form of treatment which is giving encouraging results—namely, diathermy.

My observations have been entirely confined to systolic high pressure. I have taken a pressure of 160 mm. as being abnormal, even for a person of 80, because I do not adopt without qualification the aphorism that the second and third figures in this measurement may be those of a person's age, and yet be normal; in other words, that it is normal for a person of 60 or 80 to have a blood pressure of 160 or 180 respectively and that no danger lies therein.

Is too much Attention given to High Pressure?

Some practitioners think that a great deal too much fuss is made of high blood pressure, and we certainly find it displacing appendicitis in popular literature. If this means that we need pay no attention to high blood pressure in a patient who comes complaining of subjective symptoms, and other symptoms which are objective to us, caused by it I do not agree. If it means that there are some adults of 40 or 50 years of age of either sex, who go about leading ordinary active lives, playing games, and apparently in robust, untirable health with blood-pressure of 160 or more, unknown to themselves or anyone else, and that they have a chance of living their normal expectation of life, I do agree. But there are only a few adults who do this. Although high blood pressure is common in the consulting room, it is only found in a comparatively small number of elderly people over 60 who have never had any symptoms of it in their lives, and in examining supposed healthy people of the commercial classes for insurance I do not believe, judging from my own experience, that one man or woman applicant in 25 has a blood pressure above 140, and certainly not one in 40 has to be refused a policy because of high pressure.

High blood pressure is often found to be present in persons who live an active, untirable life, thinking themselves of robust constitution until an abnormal strain adds some extra foot pounds of labour to a willing but overworked heart, and this long-suffering organ breaks down. To relate one of many instances, a very active gentleman, aged 53, was quite well until October, 1922, when hurrying three-quarters of a mile to catch his train he felt great oppression in the chest, and could hardly get along the last 100 yards. His blood pressure when I examined him some weeks after was 200, and he has never got back to his usual health. I therefore do not look upon high blood pressure as a negligible condition, but one which ought to be recognised as soon as possible and reasonable precautions taken against danger from it. Many a life can be prolonged by such precautions, and the sooner they are taken the better, because the longer the high pressure exists the more difficult it is to deal with it. As I have said, people with high pressure are often untirable in work or exercise. When I read "Wild Sports and Natural History of the Highlands," by Charles St. John, saw what long expeditions he used to make, even tiring his gillies, I wondered what sort of blood pressure he had, and on reading his life I found that, for years, in his 40's, he suffered grievously from occasional violent headaches, and when he was 44 he had a stroke, paralysing the whole of his left side, and that he died three years later. This looks very much like high blood pressure. I always suspect people that I know of as being tireless workers of having high blood pressure, but there are many very busy men who have a perfectly normal pressure.

Heredity.—Unfortunately, none of my patients could tell me whether any of their forbears had suffered from high pressure, but this condition must run in families like many other pathological conditions do. One only could tell me that his father, who died at 85 of a stroke, had it.

Family history, however, has a great influence in prognosis in high blood pressure and expectation of life, as it has in all ailments. I think more and more of its value in life insurance work. High pressure is far from being incompatible with old age. Thus of my 160 cases 22 lived to be over 70. One gentleman of 78 had a pressure of 240. One woman, aged 75, had a pressure of 210. The prospects of life in an adult in the 50's or 60's with high blood pressure are much better, when there is a family history of longevity, than they are when there is a history of death of a parent in the early 50's, especially from apoplexy. To take one example only.

A doctor under 50 with pressure of 190 gave this history. His father was alive last year, aged 82, and mother 74. Three paternal uncles were alive and over 74, a paternal aunt died at 79. His mother's mother died at 93, and her father at 70. Quite recently I examined a man of 65, for insurance, and was instructed to pay particular attention to his circulatory system. His heart was practically normal; his blood pressure was 160, hence the special note from the insurance company, which evidently was not a thick-and-thin believer in higher pressure for older ages. His arterial walls were normal; no albumin or polyuria. A life-long abstainer. There was no indication of high pressure in the family history. Father died aged 73, after an accident. Mother died, aged 56, of cancer; a brother at 44, and another at 61 from unnecessary causes, not pressure, and a sister died at 62 of cancer. I went back to the previous generation, and found his four grandparents had totalled 320 years, all living to about 80. One paternal uncle died at 86, and other uncles or aunts lived to the 70's and 80's. So I advised the office to accept the proposal in spite of the high pressure, and this they did.

A family history of death from apoplexy in the fifties and early sixties is not uncommon. I did not like the prospects of life of a man in the fifties with a blood pressure of 160, who had to lift heavy weights in his business, and whose father died before 60 of a stroke, brought on during a fit of coughing. I had to deal with such a case once.

If the radial artery shows evidence of pathological changes in its walls, or if there is any nephritis present, the outlook is not as good as in those cases, and they form the majority, in which there is no apparent organic disease.

Therefore I do not think high blood pressure is a negligible condition at any time or in any person.

Age Incidence.—I will not trouble you with a lot of statistics, but will merely refer to what interests me from a review of the 160 cases I dealt with. All the cases were seen in private practice and amongst the commercial classes. Fifty-three were in women and 107 in men. The youngest man was 40 years old, and he had no obvious disease; his pressure was 180. The youngest woman was aged 38, and she had no albumin or sugar in the urine. Her blood pressure was 190, and she had a good family history. There were nine men with pressures varying from 160 to 180, of ages between 40 and 45. The oldest man was 76,

[1] Abstract of the Presidential Address delivered before the Manchester Medical Society on Oct. 3rd, 1923.

and his pressure was 180, and the oldest woman was 79, with a pressure of 190. The highest pressure was one of 280, in a woman of 53, and a man of 60. I have measured over 320 in a cotton-mill working woman. Fifty-five of the cases occurred between the years of 50 and 60, 54 between 60 and 70, and 22 between 70 and 80. There is a slight increase in the average pressure of the oldest decade as compared with that of the youngest group—namely, 200 to 180—but not much.

Symptoms.

I now come to the more important subjective and objective symptoms of high pressure.

Nervous Symptoms.—Complaints referable to the central nervous system are very common—headaches; irritability, sometimes mental changes; transient dizziness or transient blindness coming on at any time, or especially when stooping; epileptiform seizures, either with convulsions or in the petit mal form; "queer bouts" without loss of consciousness, but with inability to move; transient losses of consciousness for a few seconds; pins and needles or a sensation of cold in the limbs and face; sleeplessness, or disturbed sleep; and what is very important, transient and disappearing monoplegia, or aphasia, or even hemiplegia, which clears up almost completely, leaving only a slight local paralysis. One gentleman, after bathing in the sea, had an attack of vomiting, with a complete right hemiplegia. I saw him the same morning, and he had a very high pressure. He improved under treatment, the arm alone being weak in the end. The transient slight paralyses are very interesting, and may occur on and off over a period of two years. I meet with them very rarely in any other cerebral lesion, and then only in senile arterial degeneration. I do not know how they are caused; but Prof. Shaw Dunn and Dr. Core will, I hope, give us their views on this matter. A transient spasm of the blood-vessels of the cortex, if such is possible in high tension, would explain them. Thrombosis of the cerebral vessels would explain them, as it does many cases of cortical-area paralysis which occurs when the blood pressure is low. But whatever causes these transient paralyses, whenever I am told about them I expect to find high pressure and am generally right.

Hæmorrhage from mucous surfaces is common, especially from the nose, hæmorrhoids, or the uterus, and, less commonly, the stomach and intestines, and bladder. Such bleeding acts as a safety-valve, and it is a problem of treatment as to whether that from piles or the uterus should be stopped by operative measures. I have not yet had to stop bleeding from the nose by plugging. One patient, a man over 70, was relieved by profuse bowel hæmorrhage which "flooded the bath-room floor," so his wife said. He undertook more public duties than he ought to have done at his age, and whilst presiding at a public meeting had a hæmorrhage which flooded his ventricles this time, and he died in the infirmary. A lady, aged 38, with pressure of 190, is at her worst before her period begins: then she has menorrhagia for two weeks and relief of symptoms. Epistaxis, as you know, is often alarmingly profuse in these cases, sometimes going on for one and a half to two hours, but not uncommonly no other attack occurs for a couple of years, or indeed for several years—over five in one elderly lady. I am surprised that hæmorrhage does not occur much more frequently. It seems to me to be wonderful how the blood-vessels, especially the small arterioles in the mucous membranes or in the brain, can stand a pressure of 200, or over 300 instead of 120, without bursting, and yet they do in more than half the cases.

Heart.—The heart is always more or less enlarged in chronic high blood pressure, sometimes to twice or three times its normal size. Sometimes the enlargement is slight and very difficult to make out. It may extend into the left axillary region, and I have been astonished on several occasions to see how big it has got without attracting attention. In the early stages it is pure hypertrophy, and then no trouble may arise from the high pressure, but eventually muscle failure will develop and dilatation follow, necessitating a visit to a doctor. Its forcible action may distress the patient, but time and again I have been surprised to find that no discomfort has been felt from the greatly enlarged heart. Valvular disease of the heart was ascertained to be present in only 11 cases, and in most of these it was mitral incompetence. It is surprising that the mitral valve does not dilate more often under the very severe stress it is put to. The blood pressure in all these cases was very high—190 in one case, over 200 in most, and as high as 280 in a man of 60. Slight aortic obstruction was present once only, and naturally I found no case of aortic incompetence, such a condition being incompatible with high blood pressure and life.

Bruit de galop was found in 12 cases, and I look upon this as an indication of cardiac muscle failure and a sign of grave prognosis. At the same time I have been surprised to find how much can be done for people with galop rhythm by judicious digitalis and dilator treatment. Diathermy also assists in their relief. Most of these patients had a blood pressure of over 200.

Auricular fibrillation occurs in a small percentage of cases. It may be merely a coincidence, but as we do not know all the causes of the disturbed contraction of the auricle it is possible that what causes some cases of high pressure may also set up the circus movement of the auricular muscle. It is sometimes very difficult to recognise high pressure by the finger only in auricular fibrillation when the pulse waves are unequal in volume. I have been somewhat surprised to find that the larger beats may resist a pressure from the sphygmomanometer of 200 mm.

Angina pectoris may be the first indication of high pressure. The pain may be slight like indigestion or of the severest nature. It occurred in 22·5 per cent. of men, and 13·5 of women, in my series almost twice as often in men, which is not surprising when we remember that the exciting causes of anginal pain in high blood pressure is overworking an abnormal circulatory apparatus, and business men are more likely to do this than women. Two of the women also led very active lives, both of them managing and serving in a butcher's shop, which is very hard work.

Albuminuria in my experience is more often absent than present in high tension. I ask all cases of high pressure if there is any nocturnal polyuria or the regular necessity to pass water two or three times in the night with the idea that if there is it means that there is deficient secretory capacity on the part of the kidneys from chronic disease which makes them unable to excrete all the urea in the daytime, and requires them to work overtime at night to clear up arrears. In asking for this symptom, care must be taken to discount the effect in the night's excretion of urine of a tumblerful of milk or water, taken just before bedtime, which generally only causes one disturbance of sleep.

Is it Advisable to Reduce High Blood Pressure?

The question is often asked, Is it advisable to try and reduce high blood pressure? My answer to this is that it depends on the personal and family history. If the high pressure is causing symptoms which send the subject of them to the doctor, and if there is a family history of early death from causes attributable to high blood pressure, such as apoplexy, an attempt must be made to reduce it; but if there are no symptoms and the condition is only found accidentally, and if there is a history of longevity, I should not attempt to reduce it; merely give some general advice as to diet, and avoidance of conditions likely to increase the already high pressure. Some patients are not comfortable if the pressure they have been used to for years is reduced materially. In between these two extremes are cases which must be dealt with on their own special indications for treatment.

Treatment.

We must warn the patient about the dangers of hurried exertion and excitement without alarming him, and advise him to lead a careful, quiet life. He should not necessarily give up his business, and he may even play mild golf when the pressure is not above 160 or 170, and there is a good family history. Some mental occupation to keep their minds off their symptoms is good for these people, and many business men have no hobby to turn to if they retire. If the successful Lancashire man's maxim can be brought into practical application so much the better—organise, deputise, supervise—supervision or consultation occupies a man without hard work. It allows of easier hours, and does not require daily attendance at the office if he does not feel quite fit for it, and that is a very great deal in prolonging life. All public work, especially if exacting or liable to work up excitement in contentious debates on councils, lay, or church, and all rush engagements must be given up. Exposure to cold and walking against strong winds should be avoided. The lives of many people with high pressure are like what John Hunter said his own was: "At any person's mercy," and the excitement of angry controversy may cut them short suddenly as it did John Hunter's, though I do not know that the latter had high pressure as well as mitral stenosis and atheromatous coronary arteries.

Remove Possible Causes.—It is necessary to remove any abnormal condition which may be lowering vitality or producing subjective or objective signs of disease. One very common condition is oral sepsis, such as pyorrhœa alveolaris, deep-seated suppuration at the roots of teeth, especially crowned teeth, or receding gums. Whenever I suspect sepsis I have the teeth examined by X rays. One man had broken down with ill-health of uncertain origin. I found a pressure of 190, and as he had receding gums I had an X ray examination made, and three dentists advised removal of all the teeth. This was done in the early part of the year. Two months later the pressure was 150 mm. only, and the man was back at his work, and is now doing the full work of a busy lawyer.

Eyestrain may be a contributing cause of high blood pressure, and whenever I suspect it I have the eyes examined by a specialist. Eyestrain can do much harm and make chronic invalids of people, but that is another story, and I will not go into it here.

Our treatment of high blood pressure is greatly handicapped by our ignorance of the real cause in the great majority of cases—that is, in those with no organic disease. I will pass over the treatment of those cases which are associated with chronic nephritis and arterio-sclerosis, and they form the minority, after merely saying that they must be dealt with on general lines of treatment of these diseases, with special attention to any symptoms calling for relief. A great difficulty is our imperfect knowledge of the interactions of the secretions of the ductless glands on the functions of each other, and especially on the suprarenal bodies. We have learned a great deal lately about ductless glands and activating bodies, but as it ever is, the more we get to know, the more we find there still is to know. The nature and mode of action of the secretions of ductless glands and of activating substances is still but an opening book with many of its leaves stuck together. If one ductless gland goes sick it does not supply the full amount of secretion that is probably necessary for the production of the secretion of the other glands, and the whole balance of work is upset. As we do not know which gland is at fault, it is difficult to tell which of them to give, to restore the balance. Polyvalent glandular pharmacy or a dose of therapeutic grape-shot, though of use in a few cases, is not as helpful as we should like it to be.

Diet.—I really doubt whether special forms of food play much part in producing high tension, but I advise a minimum consumption of butcher's meat and of coffee or tea. A man who habitually over-eats and over-drinks himself at breakfast, lunch, and dinner is more likely to develop high tension than a person who is temperate. Uncooked apples are good because they take up room, satisfy the appetite, and have no vices. Other fruit and plenty of green vegetables, cooked or in salads, are good. I generally tell people to eat in moderation plain substantial food which they know suits them. I do not consider that one glass of good sound very light wine, red or white, at the meals, or a glass of whisky at present-day strength at night does any harm, nor does tobacco in moderation. It does no good in the long run to cut a man off all the little comforts.

The nitrite group of drugs relaxes spasm of involuntary muscle and reduces arterial tension more or less, but generally less than more, and only temporarily, in high blood pressure. I never know how these drugs will act. I have seen excellent results follow the administration of a mixture containing a grain and a half of each of the iodides of potassium and sodium, and a grain or two of nitrite of sodium. Sodium nitrite is, however, an unstable compound, and likely to be inert unless obtained at the best chemist's shops. Therefore I often use one or two drops of liquor trinitini in place of it. Erythrol tetranitrate acts for a longer time than sodium nitrite. A good tablet containing sodium nitrite, erythrol tetranitrate, manitol nitrite acts best of all and is stable; it also is not as objectionable as many patients find the nitrite mixture to be. I should say that some patients find any nitrite treatment unpleasant. Some physicians recommend a ¼ gr. of calomel three times in the day for the first three days of each week. Others, a draught of 10 gr. of potassium nitrate with 20 of potassium bicarbonate in a tumblerful of water first thing in the morning. It is a good plan to secure a watery examination of the bowels each day by a saline aperient.

Artificial bleeding by venesection relieves tension temporarily, but it is necessary to remove a pint or two according to the bulk of the patient. Perhaps we do not remove enough, for I believe that if some natural bleedings from the nose, which I have seen going on for a couple of hours, had been measured they would have amounted to more. Wet cupping is futile; one patient had his life made miserable by doing this to himself monthly on the advice of a French doctor.

Iodine in the form of iodide of potash, but especially in oily or albuminoid combination or in colloidal form, is often very effective in high blood pressure. It is my stock drug for high pressure with or without arterio-sclerosis. I am sure I have used it many times with success in people over 60 years of age who complain of dizzy attacks, aphasia, or transient paralyses, and I believe its administration for years to be of much value in older people whose blood-vessels are getting atheromatous. It may act by preventing the blocking of arteries or by promoting absorption of any degenerative changes already present, or it may act by making good a deficient supply of iodine resulting from defective thyroid secretion. I do not know how it acts, nor do I care; but on the principle that it often does good and does no harm I use it, and with much success in chosen cases. When given in oily combination it rarely causes iodism as the potash compound does, even in people very susceptible to the action of the latter.

Digitalis.—I use digitalis in all these cases of high blood pressure which show signs of cardiac muscle failure—namely, anginal pain, shortness of breath, dilatation of the heart, and gallop rhythm. The heart very often is greatly enlarged—to twice or three times its normal size—and it often has a gallop rhythm. Digitalis in the form of a granule of 1/240 gr. digitoxin, or a tablet of digifolin (which contains the watery soluble constituents of 1½ gr. of digitalis leaves and is rapidly excreted) given every morning

is most useful. I have been surprised at the good results obtained for a time at any rate. It is a disputed point as to whether digitalis increases arterial tension in men. Pharmacologists say it does not. Clinically I have never known it do so, and it does help the failing heart.

In *anginal* cases we must help the overworked heart by digitalis. All patients with high pressure, but anginal cases especially, must avoid all opportunities of hurry, flurry, and worry, dress warmly in winter, take light substantial meals, avoid flatulence, and keep the bowels open, and they may live for years. Anyone with anginal pain of any degree should avoid over-eating, and should take time over meals, rising with an appetite rather than feeling that too much has been eaten. In my experience this applies especially to breakfast, for several patients have complained of the pain in the chest and shortness of breath coming on when hurrying to catch the train in the morning.

Surgical operations are often called for in subjects of high pressure, and the danger from a general anæsthetic naturally arises. Hæmorrhoids, not necessarily caused by the high pressure, not uncommonly occur and bleed—and in my opinion they should not be removed unless they cause discomfort from their size and position or become painful. Bleeding from the rectum is one of the simplest and cleanest of nature's safety valves. It generally occurs only when the bowels are opened, and the patient is all the better for it. I am doubtful whether curetting for metrorrhagia in high pressure cases does any permanent good. Chloroform and ether as general anæsthetics reduce blood pressure, and I have never heard of apoplexy taking place during their administration, and there must be scores of people with high pressure who are anæsthetised by their means. Nitrous oxide is, however, dangerous, and cases of apoplexy are recorded from time to time during its use. The extraction of several teeth under a general anæsthetic does no harm to the patient; on the contrary, the blood letting entailed by it will be of benefit.

Diathermy in Treatment of High Pressure.

I now come to the real genesis of this communication—namely, the use of diathermy in treatment of high pressure. In my opinion this gives better general results than drugs do. I read in various contributions to medical literature of its value, and you will probably have seen an account of a discussion on the subject at the recent annual meeting of the British Medical Association, in which various observers—Cumberbatch, Humphris, Turrell—relate their own successful experiences. I have now tried it for over a year in a dozen cases, and in all there has been improvement with more or less permanent relief of symptoms and lowering of pressure. Dr. Cowan, who has treated the cases for me, will speak on its value and mode of application. All the patients, with or without obvious organic disease of the kidneys or cardiovascular system, felt better, and some of the latter continued with it at their own request after I wished to discontinue its use, as the pressure was not materially reduced. Diathermy has given encouraging results in some of my cases of angina pectoris, associated with high blood pressure and over-strain of the heart muscle. Nagelschmidt has watched diathermy treatment over some years and recommends it for angina pectoris. I give some iodine preparation night and morning in most of the cases, and digitalis when necessary.

I can give you no more satisfying evidence on the value of diathermy than the experience of a doctor patient of mine, who wrote thus to me as recently as Sept. 20th: "You will remember you took my blood pressure 18 months ago and found it 190. I have been having diathermy for nine months and the pressure has come down to 150. I have the treatment at two months' intervals and it keeps the pressure down."

Medical Societies.

MANCHESTER MEDICAL SOCIETY.

A MEETING of this Society was held on Oct. 3rd, when Dr. E. M. BROCKBANK, the President, read an address on

High Blood Pressure.

He said that it had been the custom of the Society for the President to occupy the whole of one meeting with an address, but he felt he could make the consideration of this large and difficult subject more attractive if other members were to coöperate with him in addressing the meeting. He proposed himself to deal with the clinical aspects of persisting high blood pressure, Prof. Shaw Dunn would discuss the pathological side of the question, Dr. Donald Core would speak on its nervous manifestations, Dr. John Cowan on its electrical treatment, and Dr. McSwiney would describe the investigations which are being carried out in the electrocardiograph department of the Royal Infirmary on the effect of age and disease on the rate of the pulse wave. Dr. Brockbank's remarks will be found in another column of this issue of THE LANCET.

Discussion.

Prof. J. SHAW DUNN, in discussing the morbid anatomy of cases of high blood pressure, stated that it was only in a minority of cases that the kidneys showed a chronic nephritis. In the majority the kidneys, though they might be diminished in size, revealed no certain evidence of old inflammatory changes on histological examination. In these non-nephritic cases death might be due to some intercurrent disease, but if it was dependent on the hypertonus it usually occurred either from cerebral hæmorrhage or from failure of compensation of an overloaded heart. Generally speaking, in cases of hypertonus dying from cerebral hæmorrhage there was more predominant degenerative disease of arteries, more atrophic kidneys, and the left ventricle showed pure hypertrophy. Where death in hypertonus occurred from cardiac failure the arteries, though thickened, showed less degenerative disease, the kidneys were of normal size or larger than normal, and the heart was very greatly enlarged, showing hypertrophy and dilatation of both ventricles. Referring to the transient nervous seizures described by Dr. Brockbank, Prof. Dunn mentioned that it was not uncommon in cases of high pressure to find small areas of softening, especially in the basal nuclei in the brain; these were probably the result of spasm or narrowing of arterioles, and might account for the seizures in question.

Dr. DONALD CORE said: I shall only have time to touch upon certain points of neurological interest in high blood pressure. The organic change most constantly associated with a high blood pressure is the cerebral anæmia of cerebral atheroma, and in such cases the readings may be very high. The type of patient is known to all: they are, usually, vivid, eager, energetic old people, discursive and young-looking for their age, and when the condition becomes of clinical importance they complain of pain somewhere about the body, impairment of concentration power and emotional control, with defective sleep, and a tendency towards depression. Arteriospasm is liable to occur in such people, and for the most part the blood pressure in such cases is high. At the same time this does not necessarily obtain, and I have records of at least eight cases in which the systolic blood pressures vary between 120 mm. and 168 mm. The value of one solitary record of the systolic blood pressure is open to criticism, unless the reading is excessively high or excessively low. Some years ago the importance of the correlation of the pulse-rate with the blood pressure reading was emphasised, and I am

convinced that the greatest value from blood pressure readings is obtained when the daily variation in a systolic pressure is charted and compared with a chart of the daily pulse-rate. A systolic blood pressure of 160 mm. with a pulse of 120 need not necessarily have the same implication as a blood-pressure reading of 160 mm. with a pulse of 60. In cases of both cerebral hæmorrhage and cerebral thrombosis the blood pressure is liable to be high, but in the former case the pulse-rate is, as a rule, slow, whereas in the latter it tends to be quick.

Functional Disabilities.—The problem of an abnormal blood pressure is of especial interest in certain so-called functional disabilities of the nervous system. It is obvious, of course, that a raised blood pressure may be conservative, or a protective measure on the part of the body in response to certain organic diseases especially affecting the kidneys. Equally certainly, ductless gland deficiencies may be responsible for abnormally low readings. In organically healthy people the height of the blood pressure would appear to vary directly with the degree of emotional control that the particular individual has brought to bear upon his normally experienced emotional tones, or, in other words, we may look upon normal blood pressure, whatever that may be, as representing, in the absence of disease, normal emotional control for the man who is normal for his community; and in the absence of organic disease, variations above and below this would appear to go with exercise and disuse of this control respectively. In old people, people who are anxious, and people exposed to dread, the blood pressure, other things being equal, tends to be high. In young people, in obtrusively hysterical patients, and in a large group of epileptics, the blood pressure does not tend to be high, unless some complication be present. Many years ago, Sir Maurice Craig quoted observations of interest in this connexion, showing that the blood pressure is raised in cases of melancholia, and is not raised in cases of mania, but that in melancholia with agitation it tends to be rather on the low than the high side of the normal. This amounts to saying that restrained, carefully-guarded behaviour is, in the long run, associated with a raised blood pressure, whereas, the reverse obtains in uncontrolled freedom of behaviour. In this respect it is obvious that the blood pressure in healthy people presents certain interesting analogies to the psycho-galvanic response. A further point arises from the consideration of the above statements, and that is this, that the duration of symptoms in organic disease is liable to be associated with a raised blood pressure in proportion to the dread and anxiety associated with the course of the case, and in excess of what might be considered normal from the standpoint of the pathological state. Abnormally high blood-pressure readings in the absence of organic disease are associated essentially with pain, for the most part of vascular origin, impairment of the power of concentration, depression and disordered sleep, whereas, abnormally low blood pressure, possibly associated with a ductless gland deficiency, is liable to be accompanied by morbid sensations other than pain (particularly "altered consistency" sensations in different regions of the body) with very considerable impairment of emotional control. The President has already referred to certain methods of treatment of raised blood pressure, and I understand that Dr. COWAN will also deal with this point. I may say, however, that the drastic reduction of high blood pressure is in many cases likely to be associated with more discomfort than would be the case had it been left alone, and unless the reading is excessively high, in many cases it would be better to take measures to prevent the blood pressure becoming higher than to bring it down to any extent.

Dr. JOHN COWAN spoke on the

Diathermic Treatment of High Blood Pressure.

He said: There are two ways in which diathermic currents can be applied: (1) hand-to-hand and foot-to-foot method; (2) condenser couch. I have chiefly used the former method. In this method the current is passed through the upper part of the body from one hand to the other; afterwards it is passed through the lower part of the body from foot to foot. I give 20 minutes for each half of the body. During the treatment the patient feels only a sensation of warmth. I have found no difference in the results whether the patient sits up or lies down. Usually I treat weakly patients and those with known heart affections lying down; the others I treat sitting up in a chair. Altogether I have treated 38 cases, and in every case a fall in blood pressure has been obtained. In cases with arterio-sclerosis or albumin in the urine the pressure has quickly risen again. These cases require treatments about once a week to keep the pressure down. High blood-pressure cases without either of these two conditions do very well, and the pressure remains down; in one of my patients it has remained down after 12 months. In one of these cases only was the result not maintained. The amount of reduction obtained at each sitting has varied from 5 mm. to 70 mm. All cases have what I call the "irreducible minimum" below which the pressure will not remain. If the pressure is carried below this point it quickly rises until this point is reached. In my cases this point has varied between 120 mm. and 180 mm. The number of treatments required to reach the "irreducible minimum" has been from three to ten; they are given at three or four day intervals. My conclusions are that: (1) Age and sex appear to play no part except that in old people more treatments are required. (2) No diminution in the secretion of urine has been observed in any case. (3) Symptoms improve—viz., headaches, breathlessness, insomnia, fleeting pains, anginal pains, vertigo; some angina pectoris cases have improved very well. (4) Bruit de galop in one case disappeared after the first treatment. (5) The pulse appears to alter in character; from being a sharp impulse sometimes approaching the water-hammer type it becomes more in the nature of a heave and apparently more prolonged.

Dr. B. A. MCSWINEY spoke on the velocity of the pulse-wave in relation to age and to elasticity of the arterial wall. He showed how the pulse-wave is recorded by the Hill[1] hot-wire sphygmograph. The carotid and radial pulses are recorded simultaneously and the velocity of the pulse-wave calculated from the findings. The relation of pulse velocity to age was pointed out. If the formula of Bramwell and Hill[2]

$$\frac{12{\cdot}7}{(\text{velocity of pulse-wave})^2}$$

is used, 12·7 being a constant, the elasticity of the arterial wall can be calculated. Between the age of 10 and 60 the elasticity of the arterial wall is halved, which accounts for the increase in pulse pressure and systolic blood pressure with age (Bramwell, Hill, and McSwiney).[3] The relation of the velocity of the pulse-wave and of the elasticity of the artery to varying diastolic pressures is studied by applying a sphygmomanometer bandage to the arm and applying pressure as shown by Bramwell, McDowall, and McSwiney.[4] If P is the pressure inside the artery and p the applied pressure, then P–p is the effective pressure. The carotid and radial pulses are recorded simultaneously at different effective pressures, and the velocity of the pulse-wave under the bandage calculated from the results. If the formula mentioned above is applied a curve of the elasticity of the arterial wall can be plotted. This method enabled one to compare the condition of the artery in the same individual at different times, or to compare the result obtained from one individual to the average result.

[1] A. V. Hill: Jour. of Physiol., liv., Proc. Physiol. Soc., p. 52.
[2] Bramwell and Hill: Proc. Roy. Soc., 1922, xciii., B, 298.
[3] Bramwell, Hill, and McSwiney: Heart, 1923, x., No. 3, p. 233.
[4] Bramwell, McDowall, and McSwiney: Proc. Roy. Soc., 1923, xciv., B, 450.

ROYAL SOCIETY OF MEDICINE.

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

A MEETING of this section was held on Oct. 9th, Sir WILLIAM HALE-WHITE in the chair. Prof. A. J. CLARK was elected President of the section for the present year.

Prof. HUGH MACLEAN opened a discussion on the

Use of Insulin in General Practice.

The paper appeared in full in last week's issue of THE LANCET.

DR. GEORGE GRAHAM said that there was no doubt of the great value of insulin in the treatment of diabetes. It must, however, be remembered that insulin was not a substitute for dietetic treatment. He had heard of a doctor who complained of the lack of result of treatment with insulin, whilst his patient was continuing to eat his usual quantities of bread and potatoes. He agreed with Prof. MacLean that insulin treatment was for the wise, and not for the foolish, doctor and patient alike. Coming to the question as to the best way of using insulin, F. G. Banting and F. N. Allen and their colleagues believed that it should be employed to render the blood-sugar normal in the fasting state. Certain observers in the United States thought the clinical condition more important. When insulin was used principally for the improvement of that condition the patients certainly felt better, but their blood-sugar often remained nearly as high as it was before treatment. From the point of view of the islands of Langerhans they were no better. Jocelyn took up an intermediate position, holding that the urine should be sugar-free, but that the blood-sugar might be allowed to remain slightly raised. He himself thought that the patient should be so treated that the blood-sugar became normal. (The speaker then showed illustrative blood-sugar charts.) He had treated some 40 patients in all; of 23 serious cases 19 left hospital with normal blood-sugar. Unless one waited a long time some people probably could not attain to the normal. Of the four patients who left hospital with their blood-sugar still raised, one died and the other three were much improved. Of the total of 40, 2 died, 1 of pneumonia, this patient's blood-sugar having reached normal, and the other of undiagnosed tuberculosis of the lungs.

Necessity for Short Treatment and Large Dosage.

Since beginning treatment with insulin he had altered his method, although the aim remained unaltered. With many patients, as had already been said, the blood-sugar would come down if one waited long enough, but a rush of cases necessitated a shorter time for treatment of each individual case; he therefore increased the dosage, until one woman received daily 60 units in the morning and 20 units in the evening. For such large doses patients should be in a hospital or nursing home. Except in such an institution they should not receive big doses until they were able to recognise the symptoms of over-dosage. When patients showed these symptoms the dosage was reduced, the night dose—which, personally, he preferred to make the smaller one—being reduced first. It was not difficult to bring the blood-sugar down to normal, but it was more difficult to know what to do when it had been brought down. He delayed giving carbohydrates until this had happened, withholding bread as long as possible in order to give the islands of Langerhans a chance of attaining some degree of recovery. With regard to the later reduction of dosage, one of his patients was now receiving 40 units less, and another 35 units less, than when they left hospital, and both were much better. With patients in a state of coma four or five hours, and with severe cases of diabetes five or six weeks, gave the answer as to whether insulin treatment was of use, but mild cases would necessitate waiting for years before results. He was now under-working the islands of Langerhans by withholding carbohydrates in these early cases. With reference to Prof. MacLean's statement as to the giving of a dose of sugar in cases of renal glycosuria, the majority of such cases that he had seen always passed sugar.

Prof. J. J. R. MACLEOD expressed himself as unable to talk of the clinical aspect of insulin. He had been much interested in the words of the two previous speakers with regard to the use of small quantities. Although it might not be possible with very small quantities to produce much change in the disease, the patient often felt very much better as a result of their administration. Experiments had been done to measure the "glucose equivalent" of insulin—i.e., the amount of glucose that each unit of insulin could cause to be metabolised. Some of his colleagues had tried to determine the glucose equivalent in certain "pedigree patients"—patients with definite diabetic history carefully controlled and dependable for observations of this type. The glucose equivalent did not remain constant at different times in the same patient. Whatever might be the reason of this variability it was obviously important. The clinician dealt with patients not entirely depancreatised, whose island tissue was not completely degenerated; this tissue would sometimes react with endogenous production of insulin and sometimes would not react. Work had therefore been carried out with depancreatised dogs incapable of producing endogenous insulin.

Experiments with Depancreatised Dogs.

It was found that when a dog was secreting quantities of sugar, insulin had a greater effect than when the secretion was smaller. The results on different days were more constant than those obtained with human patients, and results obtained with different animals were very close. In one series of experiments the amount of glucose, and in another series the amount of insulin, given per diem was constant. The results showed that there was some relationship between the amount of glucose which could be metabolised and the ratio between insulin and available glucose. It would be of value to have a patient treated with as small a quantity of insulin as would increase his ability to metabolise carbohydrates and make just the difference necessary to bring him into a healthy state. In many diabetics the subjective symptoms were more distressing than the objective symptoms; insulin seemed to improve these cases. Coming to the question as to whether it was worth while trying to obtain insulin which might be taken by the gastro-intestinal tract or by inunction, Campbell and others had tried this with encouraging results. He believed that insulin might be useful for the treatment of milder forms of diabetes. It had been found that in diabetics the average glucose equivalent was something under 2; in dogs the lowest value was over 3, but he believed there was no essential difference. A diabetic patient was deriving about 6 per cent. of his carbohydrates from proteins; this form of carbohydrate was not the same as carbohydrate introduced as such. The dogs derived their carbohydrates from sucrose, which might explain the difference in the glucose equivalents. As regards the ultimate effect of pancreatectomy, it had been found possible to keep a dog alive for four months, but no longer; the reason for this was not known.

Skin Irritation: Level of Blood-Sugar.

A good deal has been said in Canada, in the United States, and over here about skin irritation as a result of insulin treatment. Insulin preparations always contained some protein; the pancreas of both ox and pig was used, and it was found that a patient who experienced irritation from insulin made from the one might have none with insulin made from the other. Two or three such cases had occurred in Toronto. This skin irritation might discourage a patient, and it was worth while to change the type of insulin used. He would not give a definite answer as to whether a patient should be given enough insulin to keep the blood-sugar normal, or should be allowed to carry a certain load of glycosuria; but he thought it safer to

keep the blood-sugar at the normal level. Enough information was not yet available to enable it to be said that an excess of blood-sugar was a physiological condition.

Toronto Scheme for Training of General Practitioner.

As to whether the general practitioner should feel qualified to undertake the serious treatment of diabetes with insulin, in Toronto it was decided that it would not be advisable to encourage this undertaking until the practitioner had had a short period of instruction in the use of the remedy. Through the Ontario Medical Association an arrangement had been made whereby each week 40 general practitioners spent two days in Prof. Graham's clinic in the Toronto General Hospital where lectures were delivered and clinical opportunities afforded, so that they might see exactly what the results of insulin treatment were. Hence no serious accidents in America had arisen from the use of insulin by the general practitioner. The Ontario Government had now provided, through the agency of the Provincial Health Board, that all these physicians should have insulin for the treatment of patients unable to afford it otherwise. This public health expenditure had been considered legitimate, and thereby insulin would have a fair trial. It would certainly be risky for a medical practitioner without easy access to those familiar with diabetes and insulin to undertake the treatment without occasional observations of the blood-sugar. Personally, he would not care to be responsible for treatment with this very powerful hormone without the chance of seeing what was happening by means of examination of the blood-sugar. Every patient in Toronto was deliberately given a big dose of insulin to acquaint him with the symptoms of hypoglycæmia. It had been noted that in a case with marked diuresis insulin had removed the diabetes but not the diuresis; this point deserved attention. As regards the use of adrenalin, it was well to remember that the latter might not act in removing the symptoms of hypoglycæmia unless there was a store of glycogen in the liver; such a store would certainly be found in a healthy individual, or in a diabetic patient treated for some time with insulin, but might not be found in a case of acute diabetes. This point should be watched, and an intravenous injection of glucose given in the acute case that came into hospital in a state of coma.

The Importance of Blood-Sugar Estimation.

Dr. E. P. POULTON re-stated the problem of insulin treatment in general practice as follows: Did they aim to keep the blood-sugar normal, or did it matter if the patient was passing a trace of sugar? He thought it better, if possible, to get the blood-sugar within normal limits. Could this be done in general practice without doing blood-sugars? He thought so, if they would be content to go slowly. After sugar had disappeared from the urine there was still a large margin before the approach of symptoms. The latter might, however, appear before the blood-sugar was sufficiently low, but the body would become used to the treatment, and the blood-sugar would gradually fall. He had experimented fairly satisfactorily, without doing blood-sugars, but the doctor must be experienced who attempted to do so. Concerning diet, he considered it better not to give starch; he gave 5 per cent. of vegetables—30 or 40 g. per diem. The patient felt happy with this amount of vegetable food, even without bread. Prof. MacLean had stated that the only unsuitable cases for insulin treatment were cases of renal glycosuria; these, however, were not cases of diabetes mellitus at all. He was inclined to agree. It was remarkable how elderly people improved and kept sugar-free. The problem of separating off the cases of renal glycosuria from those of diabetes mellitus must, however, come down to the blood-sugar curve. In the treatment of coma, he usually gave 40 units, perhaps at intervals of four to six hours, and every specimen of urine was tested. Queer results were sometimes obtained; patients came round to some extent and then died. He suggested that coma was a mixed uræmic and diabetic condition.

Reply.

Prof. MACLEAN, replying, said that there was some slight misapprehension of his attitude. He had at one time said that it would be better if the general practitioner in using insulin were to keep some sugar in the urine; he did not wish at that time to say anything rash, but treatment had now passed beyond that stage. What was the normal blood-sugar? It varied up and down after each meal, between 0·09 and 0·13 or 0·14. There must be some reason for that variation. He had simply wished to ensure safety. He felt that there was virtual agreement between all the speakers that the urine should now be freed from sugar, and that the blood-sugar should be brought within its normal variations. If the general practitioner took trouble he could safely treat cases without doing blood-sugars.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

THE annual meeting of this association was held on Oct. 9th at the Elizabeth Garrett Anderson Hospital, when Dr. LOUISA MARTINDALE, the retiring President, called attention to the satisfactory annual report, read by Dr. KATE PLATT, the hon. secretary, and then vacated the chair to her successor, Miss CHADBURN, M.D.

Before proceeding to give her address, Dr. CHADBURN, the new President, discussed briefly some of the points raised by Sir Humphry Rolleston in his recent address at the London School of Medicine for Women. Sir Humphry Rolleston had suggested that women work too hard and play too little. Dr. Chadburn believed that as students, women played well and worked well; but that as young medical women starting their permanent work in life, they did not work hard enough—not as hard as the young man in the same position. Medical men did not always help women to achieve and maintain a high standard of work; they were, she thought, too apt to praise work done by women which they would have torn to shreds if it had come from a man. Men and women were specialists of a sort by virtue of their sex alone, and where this sort of specialist was needed neither could take the place of the other. On occasion there was required that complete confidence and understanding which could only come from a member of the same sex. Dr. Chadburn expressed her conviction that the supply of medical women never would equal the demand—the supply was bound to be limited, the demand was rapidly increasing. That more women applied for resident posts than could get them was no proof that all these women are not needed in practice. As to the question of genius in women, even were it rare, this would not alter the value of the average merely talented worker who was perhaps more necessary in the world of work than those with genius. Another point raised had been that of marriage. It was true that marriage accounted for serious depletion of the ranks of medical women, and, moreover, quite apart from the gaps in work due to actual child-bearing, marriage and a family could not but take energy and time and interest *from* work which the unmarried woman could give *to* work. On the other hand, married women's work had a value all its own, and no one but the woman herself should decide whether she should continue work or not. Some women patients, some men needing advice about their wives, would choose a married woman, as they might under other circumstances choose a married man. As to the effect of menstruation on professional efficiency, Dr. Chadburn pointed out that medical men see only the pathological side of menstruation, since the normal does not present itself to them. Dysmenorrhœa and menorrhagia were not normal. She maintained that a large proportion of women, perhaps over 90 per cent., have no discomfort of any sort at the period; of the rest, only a very small

proportion suffer to any (even mildly) incapacitating degree—these cases are pathological. People were too apt to talk as if every woman had dysmenorrhœa. The leaflet drawn up as a result of a discussion at the Medical Officers of Schools Association by Dr. Alice Clow, and distributed amongst mistresses and parents, gave sound advice, emphasising the fact that the monthly period is not a malady but a natural function; that exercise should be continued throughout the period, and that discomfort amounting to pain was a pathological condition for which a doctor should be consulted. The President admitted that there existed a relatively small number of women with more and less incapacitating dysmenorrhœa: these women, if incurable, were unsuitable for a profession which makes severe demand for exacting service at all and any hours, day or night. This was a disability almost as serious as being minus one arm or one leg, or being subjects of heart disease or epilepsy. Men and women with serious disabilities must take them into consideration in choosing their work in life.

The President proceeded to give an address wherein she surveyed the diseases of the large bowel from cæcum to anus, which had fallen to her care during the years 1905–1922, excluding pressure effects on the bowel from outside; also cases of adhesions and their sequelæ, diseases of the appendix, hæmorrhoids, fissure, fistula, and complete perineal tears. In spite of strenuous efforts it had been found difficult to trace cases, but it was encouraging to find a few cases of carcinoma of rectum, sigmoid, colon, and cæcum living as long as eight to 14 years after radical excision. Special points were: The incidence of disease in the large bowel, the great preponderance of malignant disease, of the malignant cases the large proportion of cases inoperable when first seen and the advanced stage of those that were operable, and the rarity of the discovery of malignant disease of the large bowel at an early stage. The incidence of disease in 181 hospital cases taken consecutively: Cæcum, 12 (carcinoma 7, tubercle 3, intussusception 2); colon, 13 (carcinoma 12, tubercle 1); sigmoid, 32 (carcinoma 22, colitis 6, ulcerative colitis 1, perforation of chronic ulcer 3); rectum, 121 (carcinoma 80, fibrous stricture 16: of these 16 syphilis accounted for 10, cellulitis for 3, tubercle for 3); constriction with no ulceration 4 (cancer of cervix 1, old cellulitis 2, imperforate anus 1); radium ulcer following prophylactic radium treatment 1, shallow ulcers (?) cause 2, proctitis 2, villous tumour 4, prolapse 5, fæcal impaction 4, spasm of rectum causing obstruction with fæcal vomiting 1. Of the 181 cases 121 were carcinomata, of which 62 were operable when first seen. The President did not believe that any more radical operation than the modern abdomino-perineal excision for rectal cases would be possible; she considered that operations on the large bowel can be as radical as is physically possible. Advance must be sought either in obtaining cases earlier for treatment, in some treatment other than operative, or in prevention. Early diagnosis seemed the most hopeful means of improving results, but unfortunately the onset was insidious. Exploratory abdominal section for diagnostic purposes had not yielded much success in the President's hands.

Results of Operation.—Dr. Chadburn's operation results for carcinoma as far as available were as follows (the cause of death, unless stated, is unknown):—

Cæcum (7 cases): 5 operable, all 5 quite well, seen recently, the operations being 20 months, two years, six years, nine years, and ten years ago.

Ascending colon (2): 1 died on fourth day after operation, 1 well after two years; at a recent hysterectomy on this patient no sign of recurrence inside the abdomen was seen.

Transverse colon (1): died two years later.

Splenic flexure (1): died one year later from recurrence, kidney and lung.

Sigmoid (8): 3 well (three years, eight years, and a few months after operation); 3 dead (two to four years after); 1 no report; 1 died sixth day after operation.

Rectum: 45 operable cases.

Abdomino-perineal excision (31): 7 died from operation, 24 recovered (13 without colostomy, 11 with colostomy). Of the 24 cases which recovered abdomino-perineal excision 8 sent no report; 4 are reported to have died in three months to three years; 1 died 3¼ years after operation from acute septicæmia, no signs being found of recurrence of carcinoma; 11 have been seen, 1 has recurrence in the vagina, 10 have no signs of recurrence, 1 case after nine years, 2 cases after eight years, 4 cases after four to five years, 3 cases after two to three years.

Recto-colostomy (2): both recovered, well five and eight years after operation.

Perineal excision (11): 2 died from operation; 9 recovered, 1 well 14 years after operation, 8 no report.

Local excision (polyp found on section to be malignant): 1 died from bronchitis.

The President concluded that the operations for carcinoma in the large bowel are borne well, especially in early cases, those cases that died from operation in her series were almost without exception very advanced cases, a large proportion of them had more than the affected bowel removed—e.g., in three cases she had to remove the uterus and part of the vagina, in one the left ovary and tube and an adherent portion of small intestine in order to remove a rectal growth; in another case she had to remove the left kidney and ureter because of the involvement of the ureter in a growth of the sigmoid colon. As regards technique, she performed lateral anastomosis of bowel, or an end-to-side anastomosis as being safer, easier, and less likely to contract than an end-to-end anastomosis. For rectal carcinoma an abdomino-perineal excision, if possible, was the operation of election, with or without colostomy. Where the vessels of the sigmoid loop and the position of the growth allowed, she brought the sigmoid to the anus, leaving the sphincter after incising it, to secure drainage of the bowel. These patients had a very fair and in some cases a very good control. A perineal excision, though not the operation of election, could be a very free one if approached by the vaginal route. Dr. Chadburn did not think there was ever any advantage in taking away a portion of the sacrum—as good a clearance of glands could be obtained without, but not nearly as good a clearance as by the abdomino-perineal route, where the inferior mesenteric artery and the glands on it were removed at the highest possible point. She concluded her address by giving details of certain unusual cases.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—The first meeting of the sixty-eighth session was held in the board room of the Miller General Hospital, Greenwich, on Oct. 12th. The President, Dr. W. H. Payne, occupied the chair. Dr. E. P. Cumberbatch, Mr. Willmott Evans, Mr. C. A. Joll, Dr. H. Pritchard, and Dr. H. Nockolds showed clinical cases. On Nov. 9th Dr. Hildred Carlill will discuss Tabes Dorsalis, and on Dec. 14th Sir Thomas Horder will speak on Carcinomatosis. A clinical evening will be held on Jan. 11th. On Feb. 8th Mr. Kenneth M. Walker will speak on Experimental Work on the Internal Secretion of the Testis, and Rejuvenation Operations. On March 14th Mr. Montague L. Hine will read a paper on the Interdependence of Ophthalmology and General Medicine, and on April 11th Mr. Percival P. Cole will deal with the Surgery of the Face and Jaws.

CANCER CONGRESS IN BRUSSELS.—The *Ligue Nationale Belge* against cancer, which has recently been created, has decided to hold a congress on this subject on Nov. 18th, 19th, and 20th in Brussels. The committee engaged in the organisation of this congress hope to gain the collaboration of all branches of medical science in the social aspect of the campaign against cancer, and an attempt will be made to interest practitioners in recent therapeutic advances, as well as in the scientific study of the genesis of this disease. The representatives of allied and friendly countries will be welcomed at this congress, the first two days of which will be devoted to a discussion of biological and therapeutic problems related to malignant disease. At the end of the congress there will be a demonstration of the radio-therapeutic establishments in Brussels. All inquiries and communications should be addressed to La Ligue Nationale Belge, 80, rue de Livourne, Bruxelles.

Reviews and Notices of Books.

SERIES OF SURGICAL MONOGRAPHS.

Reconstructive Surgery of the Upper Extremity. By ARTHUR STEINDLER, M.D., F.A.C.S., Professor of Orthopædic Surgery, Iowa State University Medical School. London and New York: D. Appleton and Co. 1923. With 50 plates. Pp. 310+xix. (Series of Surgical Monographs, £6 5*s.* the set.)

Dr. Steindler's book on the "Reconstructive Surgery of the Upper Extremity" forms a part of the series of surgical monographs which are appearing under the editorial supervision of Prof. Dean Lewis, Dr. Eugene Pool, and Prof. Elting. In his preface the author tells us that the book is written as a record of personal experience rather than as a text-book, and that therefore it does not pretend to deal exhaustively with the subject as defined in the title. It appears, therefore, as if another work might be required to fill up the gaps, and that a whole library would be required for adequate discussion of the reconstructive surgery of the human body. However, the very fact of its limitation to personal experience makes this monograph of special value. As Dr. Osgood says in his introduction, "This is the type of book we need . . . the conclusions of a thoughtful man who believes his experience in a limited field has taught him certain things which it is his duty to pass on to his colaborers (sic) in the art of healing." It is characteristic that on the vexed question of birth palsy the author passes no judgment on the different theories of causation, but contents himself with the practical results of treatment. To show the scope of this work it will be enough to give a list of the chapter headings: Subacromial bursitis, congenital deformities of shoulder, paralysis of shoulder and elbow, the paralytic hand contractions of wrist and fingers, spastic paralysis, tuberculosis, chronic arthritis, congenital malformations and deformities, traumatic deformities, and the physiotherapy of the upper extremity. A perusal of this list will show how much is lacking to a complete presentment of diseases of this region, but as far as it goes it is up to date and the author's personal experience is frankly and clearly stated and statistics given in full.

The book is fully illustrated with photographs and diagrams, and handsomely printed and got up. Despite the numerous plates there are hardly any pictures of apparatus, which are of such importance in the treatment of deformities. Especially noticeable is the absence of illustrations of the technique of plaster-of-Paris appliances.

Gastro-Enteroptosis. By ROBERT C. COFFEY, M.D., F.A.C.S., Surgeon-in-Chief, Portland Surgical Hospital. Same publishers and series. 1923. Pp. 303.

ONE of the most difficult problems for the clinician is the appreciation of the legitimate place surgery should assume in the treatment of gastro-enteroptosis. Most unfortunately, surgery of this condition has been hindered by over-enthusiastic workers. The selection of suitable cases is probably more important in treating this disease than almost any other, and rules have not yet been satisfactorily worked out by which we can choose cases which will benefit by surgery. Dr. Coffey in this very valuable monograph puts forward what is known of the several aspects of this question. He has reviewed the literature very completely and presents the subject in a conservative manner. He writes in the preface: "I concede that in bringing forward this subject of ptosis and stasis, we are opening one of the most dangerous fields for surgical powers that has ever been open to the surgical 'confidence man' who needs no other excuse for performing a surgical operation, than the consent of the patient." He issues a warning, too, about X ray observations. These are of "inestimable value in the study of these cases, but are the most dangerous agent yet placed at the disposal of the unscrupulous surgeon, because they are so evident to the laity and at the same time so meaningless when considered independently in the history of the case, and not properly interpreted."

It will be seen from these different statements that the author is very cautious in his recommendations. He views the subject more from the anatomical than the physiological side. He shows how the weight of the upper abdominal organs is supported very largely by the psoas shelf; how in certain individuals this shelf is inadequate as a supporting structure, owing to the formation of the spine; how enteroptosis depends to a very large extent on whether the normal peritoneal fusions have taken place during embryonic life. He divides visceroptosis into general abdominal ptosis, right-sided ptosis, and mid-line ptosis, and whatever may be the origin of the dropping of the viscera, he is convinced that once displaced, the abdominal bands, which are regarded as the defence of the organism against further falling of the viscera, give rise to many abdominal symptoms. He concludes, and he is supported by clinical experience, that the simple division of such bands can only give very temporary relief, the bands re-forming as strongly as ever. His treatment is based on the proper fixation of the dropped viscera and division of the bands, which do not re-form when the viscera remain in their normal positions. The details of treatment are very clear and the citation of cases is rather convincing. Whether underlying physiological causes have been thrust too much into the background is open to debate. The author's views have not crystallised sufficiently for him to give rules based on radiographic appearances, as to which cases should receive surgical and which medical treatment. This question must be settled by future investigators. His views may be summed up in one of his concluding sentences. "Being a mechanical and physical condition largely, mechanical and physical measures are essential to its proper treatment." As the result of experience, he says unhesitatingly that no part of his surgical work has been more satisfactory than that pertaining to the ptosis question.

Traumatic Shock. By WALTER B. CANNON, A.M., M.D., late Lieut.-Colonel, Medical Corps, U.S. Army, George Higginson Professor of Physiology, Medical School, Harvard University. Same publishers and series. 1923. Pp. 201.

A TREATISE on surgical shock from the pen of one of the best all-round physiologists in America, and one who has studied the subject in the field as well as in the laboratory, in association with British investigators, cannot fail to be of value and interest to English readers. After carefully stating exactly what he understands by the term "shock," the author proceeds to a physiological analysis of the condition, and, like other physiologists, is of the opinion that the condition is primarily due to concentration and stagnation of blood in the capillaries. Some of the consequences of this are then considered, and, after a full discussion of the various theories which have been advanced to explain the causation of shock, the book concludes with an account of the various forms of treatment which have been advocated. The book is sound and well written, and provides solid ground for further investigations into this important condition.

Surgery of the Spleen. By EUGENE H. POOL, M.D., Attending Surgeon, New York Hospital; Clinical Professor of Surgery, Columbia University; and RALPH G. STILLMAN, M.D., Clinical Pathologist, New York Hospital; Assistant Professor of Clinical Pathology, Cornell Medical School. Same publishers and series. 1923. Pp. 347.

THE surgery of the spleen is in reality a small subject and is yet in its infancy. This depends largely upon our lack of knowledge of the functions of the spleen in normal life. In this volume we find a very good epitome of what is known of splenic activity both in health and disease. A wide range of literature has been consulted and the views of different observers

are put forward with well-balanced judgment. After a review of the anatomy, embryology, physiology, and pathology of the spleen, the clinical features associated with splenic disease are treated in separate chapters. The obscure diseases of the spleen are set forth as far as present knowledge allows, and surgical indications are given. The book ends with a chapter on operative procedures. The monograph will be useful as presenting present-day knowledge of diseases associated with the spleen.

The Transplantation of Tissues. By HAROLD NEUHOF, M.D., Instructor in Surgery, Columbia University, Associate Surgeon, Mount Sinai Hospital. Same publishers and series. 1923. Pp. 297.

THE knowledge relating to the transplantation of tissues is far from exact, although a great deal of work has been done and the literature is extensive. Too often unwarranted deductions have been made from experiments by enthusiastic workers, whilst there has frequently been an absence of controls. A service has therefore been performed by Dr. Neuhof in making a critical and comprehensive review of a subject to which he has personally devoted much study. After a consideration of general principles and of the factors necessary to success in the different forms of transplantation, the grafting of the different tissues is described, and the indications for such methods are set forth. Throughout the author insists that the evidence for survival of moderate-sized growths of any tissue is of the slightest. This is true of autoplastic grafts where the prospect of success is greatest. He believes that a study of blood compatibility may possibly render homo-transplantation a practical measure. He reports one success where tatooed skin was transplanted to a patient of the same blood group. He believes that skin grafting could be used more extensively with benefit to patients. Technique for different operations is described. The inlay method for curing ectropion and other defects is not considered, though it is the best available for certain purposes. The chapter on fascial grafts is informative and helpful to the plastic surgeon. The author is commendably cautious in extolling the virtues of such transplantation. Always he insists that an attached flap is better than the free flap which, is only to be employed when local plastic measures are impracticable. It is this caution manifest throughout the book which renders his recommendations for the use of transplantation methods so valuable. He shows how fascia lata can be used for the cure of ptosis, the improvement of facial paralysis, the repair of defects in dura mater or abdominal wall, and for other purposes. As a covering for bone ends in arthroplasty he does not believe free grafts to be suitable. The chapters on fat and bone grafting provide a mass of useful information. We gather that the use of fat as a free transplant could be extended. Cartilage is stated to resist disintegration longer than bone. It is regarded as the best material for the closure of skull defects and as a support in the fashioning of a new nose. There is a critical review of work that has been done on the transplantation of whole organs.

This is a book which any surgeon would be glad to possess for consultation when the problems of plastic surgery arise.

ANÆSTHETICS.

Practical Local Anæsthesia. By ROBERT EMMETT FARR, M.D., Minneapolis. London: Henry Kimpton. 1923. With 219 engravings and 16 plates. Pp. 529. 42*s*.

THE dedication of this book "to that important individual, the patient, who, fate has decreed, must undergo surgical treatment" gives a true line to one of its most noticeable characteristics, the constant sympathy of the author for the trials of the patient. This quality is especially important on the part of one who practises local anæsthesia. It has saved Dr. Farr, ardent partisan though he is of local methods, from ignoring their inevitable occasional inadequacy. When the respective advantages and disadvantages of local and general methods are contrasted, Dr. Farr never loses sight of the patient's feelings. His remarks, however, on general anæsthetics are the least valuable portion of his work. The book is divided into three parts, and the first part deals, in addition to general anæsthetics, with equipment and technique, a description of the sensory nervous system being added. The especial importance of technique and of correctly designed instruments, as a part of the essential devices for avoiding pain, are well enforced by the author. The lesson is instilled throughout that under local emergencies success is impossible unless the surgeon constantly exercises the utmost gentleness. Thus the patient is spared the amount of injury which is apt to be inflicted without noticeable harm at the moment by those who operate only during general anæsthesia.

The second part describes the use of local anæsthesia in all regions of the body except the abdomen. This is reserved for the third part. Many of those who use local anæsthetics for most purposes fight shy of them for operations on the upper abdomen. Dr. Farr is not one of these. He makes frequent use of splanchnic anæsthesia by the anterior route, having opened the abdomen under infiltration anæsthesia. The relative values of regional and infiltration methods are fully discussed and the reasons for generally preferring the latter are clearly demonstrated. The usual solution that the author prefers is novocaine between 0·07 and 1 per cent. with epinephrin. The latter ingredient he reduces to a very small proportion when operating for exophthalmic goitre. In all operations about the anus and in tonsillectomies he uses 1 to 600 solution of quinine and urea hydrochloride, after operating under novocaine, in order to prevent after-pain. An official term new to us appears in the book—the "psycho-anæsthetist." He, or more often apparently she, is capable of giving general anæsthetics when they become necessary and the decision on this rests largely with him or her. Apart from this, the psycho-anæsthetist supplies moral support to the patient, both before operation and at the time, and in various ways ensures that calmness of the mental atmosphere on which Dr. Farr so rightly lays stress in local anæsthesia. The author employs preliminary hypodermic injections in moderation only, and rightly distinguishes between the use of local anæsthetics on persons already stupefied with narcotics and their employment as the responsible anæsthetic agent.

The illustrations are very good, and the whole book, with its careful attention to detail, will prove of great assistance to any surgeon who proposes to become expert in the use of local anæsthetics.

The Art of Anæsthesia. Third edition. By P. J. FLAGG, M.D. London and Philadelphia: J. B. Lippincott. 1923. With 136 illustrations. Pp. 371. 18*s*.

THE third edition of Dr. Flagg's book has increased in size but not unduly. The author's work on discriminating degrees of cyanosis is perhaps the most interesting of the new matter. He rightly attaches the utmost importance to the colour of the blood as a clinical index of condition in the patient under anæsthetics. Hence to be able to gauge accurately slight differences in blood colour should be a potent means of safety in the anæsthetist's hands. The differences depend, of course, on differences in oxygen content. For using this symptom to estimate a patient's condition, Dr. Flagg has employed an instrument called the "hæmoxometer" or "oxyhæmoglobinometer," which affords, he says, a simple means of reading the oxygen content of the blood. Dr. Flagg expresses a pronounced preference for gas and oxygen and ether with preliminary hypodermics as the best all-round method thus far devised. He is impressed with the possibilities of danger and of failure with gas and oxygen alone and disapproves of the saturation method. A chapter is devoted to the duties of the nurse before, during, and after anæsthesia. In this country, at least, she has little

part to play before and during anæsthesia so far as the anæsthetic is concerned, but her duties afterwards, as detailed by Dr. Flagg, might well be carried out by many nurses "on this side."

ELEMENTS OF PHARMACY, MATERIA MEDICA, AND THERAPEUTICS.

Eleventh edition. By Sir WILLIAM WHITLA, M.P., M.D., D.Sc., Emeritus Professor of Materia Medica and Therapeutics, Queen's University, Belfast. London: Baillière, Tindall, and Cox. 1923. Pp. 672. 10*s.* 6*d.*

THE new edition runs on the lines of the old; it is the best book of reference for ordinary drugs, official and non-official. As there has been no new British Pharmacopœia since the last edition, the official part is changed very little, but in the non-official remedies there are several additions and omissions. Drugs come and go, and Prof. Whitla gives them a fair chance. The appearance of a drug in this volume is a hall-mark with which the maker may well be content. While the new edition brings one up to date it is worth keeping the old edition to look up preparations which have had their day. Only a few points need comment: we are astonished there is not more reference to quinidine, which is still left as the uninteresting sister of quinine and is classed as one of the drugs that are less frequently employed than formerly. Acriflavine, yadil, eusol, and iodex now find a well-deserved place, and gamboge reappears after a period of exile. Hay fever vaccine now replaces serum. The list of vaccines and serums is a specially useful one, for the knowledge and doses of these is such that no one can carry them in his head. Reference in this book is always easy, for the index is excellent.

SEWERAGE.

The Designing, Constructing, and Maintaining of Sewerage Systems and Sewage Treatment Plans. Ninth edition. By A. PRESCOTT FOLWELL, Past President of the American Society for Municipal Improvements. London: Chapman and Hall, Ltd. Pp. 477. 27*s.*

THE established reputation of this work by an American expert obviates the necessity for elaborate review, as does also the fact that general principles as to sewerage systems and sewage disposal interest the medical profession rather than the scientific and practical details here given. The work is divided into two parts. The first part on sewerage systems comprises 13 chapters dealing with the amount of house sewage and of storm sewage, with flow in sewers, flushing and ventilation, collection of data, designing, specifications, construction, and maintenance. In the second part relating to sewage disposal, the first chapter deals with disposal by dilution; then follow chapters on the removal of suspended matters, oxidation methods, and other treatment methods.

The subject is clearly dealt with, and numerous figures make specially difficult points clear. In an appendix is given a list of the processes adopted in a large number of cities in America.

JOURNALS.

JOURNAL OF PATHOLOGY AND BACTERIOLOGY. Vol. XXVI. No. 4. Pp. 433–556. October, 1923.—The Organisms of the Fowl Typhoid Group, by R. St. John-Brooks and Mabel Rhodes. A study of the various organisms which have been isolated in Europe and America from fowls and other birds with dysenteric symptoms and described under a variety of names. Some of these are shown to be synonymous, and the grouping of the species is clarified. The paper is a good example of the valuable taxonomic work which the existence of the National Collection of Type Cultures at the Lister Institute renders possible. —Vitamins and Bacterial Growth, by G. A. Wyon. There has been a good deal of loose talk about the influence of vitamins on the growth of bacteria; the author shows that vitamin B from yeast exerts no favourable action, and incidentally that amino-acids are not such important adjuvants as has been supposed.—Diphtheria Toxin Production on Douglas's Medium, by A. F. Watson and U. Wallace. Tryptic digests of meat, prepared under controlled conditions of time and temperature, make it possible to obtain high-grade diphtheria toxins with considerable certainty.—The Structure of the Thyroid Organ in Man, by G. Scott Williamson and I. H. Pearse.—The Healing of a Uterine Wound: Mitosis in Unstriped Muscle, by D. McIntyre. The occurrence of reparative cell-multiplication in human plain muscle is quite exceptional.—Primary Liver-cell Adenoma (Hepatoma), by A. F. B. Shaw. A detailed description of one of these interesting liver tumours in a boy of 13. —The Relation of Deprivation of Vitamin B to Body Temperature and Bacterial Infection, by G. M. Findlay. We comment on this paper in a leading article.—On the Composition of *B. welchii* Toxin, by H. Henry. The bacillus produces two toxins, with special actions on red blood corpuscles and muscle respectively. Their relative proportions are the same in different preparations, and hence the neutralising value of antitoxic sera can be ascertained by titrating the hæmolysin in vitro.—The Pathogenesis of Primary Pneumococcal Peritonitis, by J. E. McCartney. The disease is confined to female children, mostly of the poorer classes. Infection takes place through the vagina, and is encouraged by dirtiness leading to a vulvo-vaginitis from which virulent pneumococci may be isolated.—The Presence of Heterophile Antigen in Bacteria, with Special Reference to Shiga's Dysentery Bacillus, by T. Iijima. The organs of certain animals—e.g., guinea-pig but not man—injected into rabbits lead to the production of hæmolytic immune body for sheep corpuscles. Shiga's dysentery bacillus does the same, and some of the toxic effects of Shiga vaccines may be anaphylactic in character, since human serum sometimes contains considerable quantities of heterophile (Forssman) antibody. Cholera, typhoid, paratyphoid, and Gaertner bacilli do not contain the antigen.—Cutaneous Hypersensitiveness in Enteric Infections, with Special Reference to Carriers, by W. McKendrick. Intradermal injections of dilute emulsions of typhoid and paratyphoid bacilli are a valuable method of detecting the persistence of infection in typhoid convalescents and of finding carriers. A positive reaction is highly specific, a negative one of less value. —A Neuroblastoma of the Thoracic Cavity, by J. A. Anderson and T. Shennan.—Leucocytosis in Myeloid Leukæmia, by A. Piney. Hourly counts show a very large digestion leucocytosis, in which all varieties of cells participate about equally; the reaction fails towards the end of life.—A photograph of a group of 98 pathologists, with a key to their identification, forms an interesting record of the last meeting of the Society.

INDIAN JOURNAL OF MEDICAL RESEARCH. Vol. II., No. 1. 1923.—This number contains 22 articles.—R. McCarrison contributes a long paper on the pathogenesis of deficiency disease.—J. A. Sinton describes Indian species of the genus phlebotomus.—J. A. Cruickshank and his collaborators write on the statistics of filariasis and the relationship between it and elephantiasis.—J. F. Caius and K. S. Mkaskar have investigated the relationship between the chemical composition of anthelmintics and their therapeutic values.—W. F. Harvey has three articles upon vaccines and laboratory technique; two of these are in collaboration with K. R. K. Iyengar.—H. E. Shortt describes the pathology of acute experimental kala-azar in monkeys; he also has a second short, but important, communication on the recovery of the Leishman-Donovan body from the urine in this disease.—P. J. Barraud writes at length on the revision of the culicine mosquitoes of India.—R. B. Lloyd, E. Muir, and G. C. Mitra have investigated the Wassermann reaction in leprosy, and appear to have settled this question.—E. Muir has studied the spread of leprosy throughout the body, while E. S. Phipson describes an outbreak of typhus in Simla, in which he found the Weil-Felix reaction of very distinct value.

THE LANCET.

LONDON: SATURDAY, OCTOBER 20, 1923.

MEDICAL BENEFIT UNDER THE NATIONAL INSURANCE ACT.

As we go to press, the Conference of representatives of the Local Medical and Panel Committees—to give the body its full name—is sitting in circumstances so familiar to all that they need not be recapitulated further than in the following sentences. The Government has decided to reduce the capitation fee, and the offer published in THE LANCET last week contains their terms in a succinct statement. The Insurance Acts Committee of the British Medical Association have replied categorically to the offer of the Government, pointing out that their answer embodies the advice which they are prepared to offer to the representatives of the two committees at the Conference. The gist of that advice was that the terms offered by the Minister, being inadequate, should be made the subject of arbitration. To the letter of the Insurance Acts Committee the Minister has replied refusing arbitration. This letter will be found on p. 898, together with the reply of the committee acknowledging the responsibility placed upon them, and pointing out that the medical profession cannot accept the position of being placed under the dominance or control of a particular section—namely, the approved societies. With the representatives at the Panel Conference—to use the abbreviated title of the body now in conclave—rests the decision as to what definite reply shall be made to the offer of the Government. From much comment in the public press, and from knowledge acquired here of the feelings of the medical profession, we gather that the machinery for regulating medical benefit under the National Insurance Acts is not widely understood, so that the delays preliminary to the arrival of definite decisions are viewed with impatience, while the appearance is given of subterfuge or hesitation by the constant employment of the phrase that the final responsibility does not rest with this or that body or lie in this or that direction. As the decisions of the representatives of the two committees, arrived at by the Conference, will be the subject of close and wide discussion, it may be useful to set out the structure and responsibilities of bodies concerned in the regulation of medical benefit.

The first thing that it is necessary to remember is that Parliament is supreme both in the interpretation of doubtful points under which any statutory bodies are constituted and in the allotment of the duties and responsibilities of those bodies. Section 8, paragraph 1, of the 1911 Act sets out succinctly the benefits conferred by the Act upon insured persons. They are medical treatment and attendance, including the provision of proper and sufficient medicines and such medical and surgical appliances as may be prescribed by the regulations of the Ministry of Health, now and here replacing the Insurance Commissioners. Other sub-headings of the section include mention of assistance in cases of disease and incapacity, of disablement, and as maternity benefit. Section 14 of the Act deals with the administration by the approved societies and, in the case of those who are not members of one of these bodies, by the Ministry of Health. The following Section (15) in the second sub-clause defines panel practice, setting out how the medical practitioners are expected to meet the situation of administering the medical benefits under the insurance committees, whose duty it is to make arrangements with the practitioners in accordance with the regulations of the Ministry of Health. These insurance committees, as defined in Section 59 of the 1911 Act, are statutory bodies, constituted for every county and county borough. Three-fifths of each committee consists of representatives of the approved societies, the remaining two-fifths being made up of the State, county, and the medical representatives. The Conference which is now proceeding arises in this way. Under the 1911 Act there were created the local medical committees, elected by the medical practitioners in the neighbourhood, whether accepting the responsibilities of the panel or no. The local panel committees, statutory bodies created by the 1913 Act, are chosen by the panel practitioners and the practical result has been that these two bodies proved largely identical. So it has been frequently found simpler for one body by common agreement to function as representing both, and it is these committees who are sending representatives to the Conference. As, however, there is no onus upon them in the Act to choose representatives or to hold a conference, their action is spontaneous. None the less these conferences have been held since 1913, and since 1915 their recommendations have been recognised by the Ministry of Health as coming from a central mouthpiece. After the Conference the representatives deliver their message through the Insurance Acts Committee of the British Medical Association. It is clear that they might choose an executive committee from among themselves and act through that executive committee, and it has been pointed out that in principle this is what should have been done. We do not think that this point has the importance which it assumes in some minds, seeing that the overwhelming majority of the Insurance Acts Committee have been directly elected by the local medical and panel committees. The Insurance Acts Committee will receive the message of the Conference and deliver it to the Ministry of Health, that Ministry having now definitely assumed all the functions of the original Commissioners; and the Minister of Health will decide upon the actual course to be taken obtaining, of course, Parliamentary sanction for his action.

The reply of the Insurance Acts Committee to the offer of the Minister of Health, though temperate and well-considered, has not escaped abuse from the approved society officials. One of these officials has gone so far as to say that the societies are not prepared to agree to such an offer, and further, that the Minister has no right or power to make it. The position taken up by the society officials is that which might have been expected after the expedient had been adopted at the end of 1921 in respect of the surplus funds of the societies. The medical benefit fund is an integral part of the general insurance funds and quite distinct from the sickness benefit funds which are disbursed by the societies. The danger of conceding the principle that the doctors are paid out of the funds of the societies is obvious, for already it is contended that if the doctors are to be paid adequately the weekly payments of the sick insured person must be curtailed. The question is wider than that of an additional shilling or so on the capitation fee, and we therefore regret the decision of the Minister of Health not to proceed to arbitration. We do not want a repetition of the "battle of the clubs."

VITAMINS, INFECTION AND BODY TEMPERATURE.

THE importance of vitamin deficiencies in promoting morbidity and mortality from infectious conditions has often been urged in recent years. Their real rôle in this respect can be determined only by the massive data of hygienic studies, for effects which are substantial enough in the returns of medical officers of health are often outside the practicable range of experimental investigation. It would, for example, be difficult to reproduce and analyse in the laboratory a reduction of infantile mortality from 100 to 80 per thousand births. But the belief that moderate vitamin defects are responsible for a definite increase of infections is much encouraged by the demonstration that, under the exaggerated conditions of experimental work, animals fed on grossly defective diets are found to be much more susceptible to infection by inoculation than are similar animals normally fed. In the last number of the *Journal of Pathology and Bacteriology* Dr. G. M. FINDLAY describes a series of experiments on pigeons deprived of vitamin B, and shows that after a deprivation of two or three weeks they readily succumb to inoculation with the pneumococcus and the meningococcus to which they are naturally completely resistant, and are much more than normally susceptible to doses of *B. coli* and Gaertner's bacillus. Getting an indication of an explanation of this difference from the work of STROUSE on the natural immunity of birds to the pneumococcus, he shows that the vitamin defect leads to a considerable lowering of body temperature, that the effect of any one inoculation can be predicted from the temperature of the bird at the time, and that artificial lowering of temperature with the drug pyramidon induces a similar susceptibility. The same facts have been described independently by C. H. WERKMAN.[1] Under the conditions of these experiments a marked fall of body temperature has a 100 per cent. effect; it is at least not unlikely that smaller deviations from the normal level of heat will have results important enough in the scale of human morbidity.

It is 45 years since PASTEUR, JOUBERT, and CHAMBERLAND found that cooling a chicken made it susceptible to anthrax infection, and enough importance has perhaps not been given since to that classical observation. Fever is now rightly regarded as an important part of the defence against infection; more attention should perhaps be given to subnormal temperatures as aiding infection and depressing resistance. A gay and buoyant temperament and the kind of life it leads to are well-recognised enemies of bacteria; a depressed and meagre existence is on their side. The form of the daily curve of body temperature depends largely on bodily activity; getting up and dressing brings it up to "normal" from the 97° F. or thereabouts which it is at the moment of waking, but its progress to the 100° or so which it reaches at midday is a question of vigour and muscular activity. The mean temperature of the melancholy, ill-fed or lethargic will, therefore, presumably be lower than that of the cheerful and lively. Violent muscular work raises temperature still further, hence perhaps some of the beneficial effects of exercise, but if it is pushed to exhaustion temperature soon falls to subnormal, and the ill-effect of tiredness on infections is notorious.

The mechanism of the relation between temperature and resistance is not quite obvious. With pneumococcus infections the fever is higher than the organism bears easily; it can be shown outside the body that the organism grows better at lower temperatures. But in many cases this does not apply. If the processes of attack by the bacteria and those of defence by the body had the same temperature coefficient, the relation of the two would not be altered by a change. It may be that the coefficients are different, or, which is more likely, that while the attack depends essentially on a single factor—the growth of the organisms—the defence uses a variety of methods, such as antibody production and phagocytosis, which are not directly dependent on one another, and whose combined effect varies with their product rather than their sum. If this be so, changes of temperature make much more difference to the body than to the organisms, which is the same as saying that the temperature coefficients are en masse different.

[1] Journal of Infectious Diseases, vol. xxxii., p. 253.

ECONOMICAL PRESCRIBING ABROAD AND AT HOME.

A STUDENT trained in hospitals where medicines are ordered and appear at request can have but little idea of the prices of remedies, especially as the prescriptions ordered in hospitals are mainly those of stock mixtures prepared with a view to economy. When he first starts in general practice, he is usually overgenerous with drugs, in a subconscious attempt to protect the patient from any deficiencies in treatment that may arise through his own lack of experience. Later he finds that his drug bill is too large and he strives to modify it, but gets little help in his efforts apart from friendly hints from colleagues.

The rapid changes in money value in Germany and Austria have necessitated an even more drastic survey of the drugs in use than is necessary in this country. Dr. A. FRÖHLICH and Dr. R. WASICKY[1] have recently pointed out how drugs can be prescribed economically and in what form they can best be given. The information must be especially useful to the young practitioner, for whom the book forms an epitome of practical therapeutics. On the continent fluid medicines are ordered by weight and not by volume, as in this country, and, as a lesson in economy, it is interesting to read that the practitioner is recommended to order codeine phosphate 0·05 aq. dest., ad 200·0, in preference to the same drug made up aq. dest. 200·0. The latter brings the medicine above the 200 gramme limit and so will be charged more heavily than the former. Some of the general rules for economical prescribing are worth noting. Home drugs are to be preferred to foreign ones, tablets to powders and mixtures, and solid preparations to fluid ones; the use of medicines given in drop form is to be limited; infusions and decoctions of non-poisonous drugs should be made by the patient at home; tap-water is generally as good as distilled water; in external medicines alcohol can usually be eliminated and in liniments can be replaced by ammonia; pills should only be used when the active substance forms the greatest part of the pill mass; proprietary preparations should only be prescribed on exceptional occasions and patented names should be replaced by chemical ones. Another publication[2] contains an extraordinary amount of information on everything to do with the practical aspects of drugs; a feature is that the cost of all drugs mentioned is given, and two sections on cheap and dear drugs are included. The prices must be somewhat indefinite owing to the uncertainty of the mark, but the idea is excellent. It is carried further by the frequent references from expensive

[1] Taschenbuch der Ökonomischen u. Rationellen Rezeptur. Second edition. Berlin and Vienna: Urban and Schwarzenberg.
[2] Von Ziemssen's Rezepttaschenbuch für Klinik und Praxis. Thirteenth edition. Edited by Dr. Hermann Rieder and Dr. Martin Zeller. Leipzig: Georg Thieme. 1922. Pp. 339. 5s.

drugs under proprietary designation to the cheaper form of the same under its scientific or non-patented name. A certain number of prescriptions in this part will help the beginner, and practical notes on treatment are given. Prof. C. BACHEM, of Bonn, treats[3] the subject rather differently. This book directs the doctor who has some knowledge of theoretical pharmacology to use the right drug in the right place and in the right manner. Experimental pharmacology has in the past been separated and treated too far apart from practical medicine, and the author's aim is to bridge the gap for the practitioner by treating of different diseases and functions of the body and by bringing together and describing the drugs used for them. This therapeutic arrangement entails the duplicating of some drugs and a considerable amount of cross reference. The drugs are well and clearly described. Proprietary preparations naturally occupy a large portion of the book, and many of those described are little used in English-speaking countries, but this adds to the value of the book, for those commonly used in this country can easily be found in English books. The index of the firms which manufacture the drugs, unobtrusively placed in the book, may be of great use. The author believes that as proprietary preparations abound, there is a demand for information about their composition and contents; for in the battle against quackery and swindling the doctor must possess and impart information on their nature and value in the interests of the public and the manufacturers alike.

Annotations.

"Ne quid nimis."

MEDICAL HISTORY OF THE WAR.

WE reviewed last week four large and carefully edited volumes on the Medical Services of the War in the domain of pathology and hygiene, together with the second volume on Diseases of the War. A detailed estimate of the many and varied fields which such work covers cannot possibly be made in the space at our disposal. Taking it as a whole, these volumes make most interesting and informatory reading, and in compiling an official document of the growth of medical science in the forcing house of war, the editors are to be congratulated on accomplishing a great and laborious task. These records have been evidently designed to be read as a comprehensive and consecutive study rather than as a series of monographs, and in this the system adopted of grouping the contributions with the contributors in an index at the beginning of each volume, while leaving individual chapters unsigned, helps very considerably. The reader feels that he is getting a connected story (in many parts one might almost say "romance") bearing the stamp of editorial authority in its balance and general treatment of the subject, and which is at the same time scientifically accurate in details. This sense of editorial responsibility in the reader's mind greatly enhances the value of the work as an authentic history. Also in many places this history must become a valuable work of reference, and for such a purpose it is equally well constructed. The student in any particular section can refer to the author of it merely by consulting the list at the head of the volume, while a full bibliography appended to each chapter furnishes a comprehensive reference to the bulk of the medical literature of the war.

In a general survey of medical experience there are perhaps two facts which claim attention as being essentially lessons of the war. The first is the discovery of the inadequacy of accepted theories of antisepsis in dealing with wounds under war conditions. It was found that the control of sepsis under civil conditions was a very different problem from the prevention of suppuration in wounds where satisfactory primary treatment was often delayed for days. Sir Alfred Keogh makes the striking statement that at the beginning of the war "we went straight back into all the septic infections of the Middle Ages." In recognising the part played by the body fluids, as apart from antiseptics, in overcoming infection, and in devising means to facilitate this action, pathology, chiefly through the investigations of Sir Almroth Wright and his fellow-workers made a great step forwards. The other outstanding fact brought home by the modern conditions of warfare is the paramount importance of hygiene in conserving life and promoting efficiency. It was realised from the first that in a campaign involving millions of men the way to success lay in sanitation. The results of the work done in maintaining the general health and efficiency of the fighting forces and of the civil population under the severest conditions will remain as a benefit to humanity; in a fuller appreciation of the meaning of economy and in the widespread awakening of a "sanitary consciousness" we learned a lesson in the war which can well be adapted to times of peace. As a military text-book, the Medical History of the War will occupy a prominent place, and will form, in the unfortunate event of some future warfare in any part of the world, the basis of sound medical administration. The books are well printed and on the whole the illustrations are good, but the binding is at the best fair. Volumes intended largely for reference should at least be strongly backed, which these are not. The tooling is poor, and their appearance in a library—for they should be on every medical man's top bookshelf—can hardly be called handsome.

THE BLOOD IN SMALL-POX.

Prof. W. H. Hoffmann,[1] of Habana in Cuba, where an epidemic has been prevalent for three years, has examined the blood in 300 cases of small-pox, and has come to the following conclusions. (1) The total number of leucocytes is subnormal during the first three days, amounting only to 4–6000. It rapidly rises after the fourth day, and between the ninth and fourteenth days shows an average count of 17,000, in some cases as much as 30–40,000. In the third week there is an average leucocytosis of 10–12,000, and occasionally 24,000. During the next three weeks the number of leucocytes gradually falls, but still remains fairly high—viz., 9–12,000. Prof. Hoffmann was unable to pursue his observations beyond the sixth week, by which time the leucocyte count had not yet become normal. (2) The differential count shows considerable variations from the normal. The number of polymorphonuclears is diminished in the first week, being on the average 20–30 per cent., and in some cases only 12 per cent. Subsequently the polymorphonuclears remain at about 40 per cent. until the end of the sixth week. There is a considerable increase in the eosinophils, which in the first three weeks number 3–10 per cent. on the average. After the eighteenth day they rise to 15–20 per cent., and sometimes to 30 per cent. Corresponding to the diminution of the polymorphonuclears there is a well-marked increase of lymphocytes. During the first week they are 45 per cent., in the third week 65 per cent., and later they are still 40–50 per cent. Readings of 60–75 per cent. are not unusual. The large mononuclears are also increased, especially in the first two weeks, being on the average 4–8 per cent., and not infrequently 20 per cent. Specially characteristic of small-pox is the appearance of pathological cells in the blood in the form of myelocytes which are hardly ever absent. In the first three weeks they amount to 1–3 per cent., and often number 4–5 per cent., and even 10–12 per cent. Later they become somewhat less numerous. A similar blood picture is only to be found in varicella, in which, however, the total number of leucocytes is generally rather diminished with an occasional slight rise about

[3] Arzneitherapie des praktischen Arztes. Third edition. By Prof. C. Bachem, of Bonn. Berlin and Vienna: Urban and Schwarzenberg. Pp. 296.

[1] Münchener medizinische Wochenschrift, August 10th, 1923.

the eighth to tenth day of disease (10–12,000). Prof. Hoffmann thinks that in suspected cases examination of the blood may be of diagnostic value. (3) No striking changes were observed in the number of red corpuscles and hæmoglobin content, nor did the red corpuscles show any pronounced degenerative changes.

MEDICAL RESEARCH IN JAPAN.

WE have lately received a number of publications from Japan which testify to the activity with which medical research on modern lines is pursued in that country. In the first place there are several bulky numbers of the twenty-ninth and thirtieth volumes of the well-known journal *Mitteilungen aus der Medizinischen Fakultät der Kaiserlichen Universität zu Tokyo*, with many solid papers on a great variety of subjects—lymphoma leukæmia and allied conditions, mathematical hydrodynamics of cerebro-spinal fluid, the culture of rabies virus in vitro, and so forth. Next there are three parts of a new journal issued by the National Research Council of Japan as the *Japanese Journal of Medical Sciences: Abstracts*, which gives abstracts (in some cases titles only) in German or English of the papers published in the Japanese periodicals. In some of these the papers appear in a European language, and would be easily available to those who were in the habit of consulting the journals in question. But many of them are originally in Japanese, and this new publication certainly gives a surprising revelation of the bulk and quality of medical research which is printed in a form which makes it quite inaccessible to most people who might be interested. The topics and the way in which they are dealt with are quite Western in character, and it is interesting to compare the number of abstracts appearing under each head with their representation in European and American work. Part I. includes pathology (260 items); Part II. physiology (25), pharmacology (53), biochemistry (144), serology (41), forensic medicine (6), protozoology (3), bacteriology (138), hygiene (36), and anatomy (95); Part III. internal medicine (13), surgery (9), gynæcology and tocology (95), dermatology (321), urology (120), ophthalmology (106), pediatrics (106), oto-rhino-laryngology (77), and psychiatry and neurology (45). Thus pathology in our own wide sense accounts for 442 and clinical subjects for 872; to which it should be added that many of the abstracts in Part III. deal with purely laboratory investigations—e.g., comparisons of the Sachs-Georgi and Wassermann reactions are under dermatology, not serology. From all of which we may surmise that in Japan, as in this country, "medical" research tends to desert the wards for the allied field of the laboratory. The third publication to notice is the first volume of *Scientific Reports from the Government Institute for Infectious Diseases*, of which Prof. M. Nagayo is the director. This contains complete reprints of most of the papers published from the institute during 1922, translated into a "foreign language" under the editorship of Dr. Y. Miyagawa. The non-Japanese language is English in 34 papers, German in nine, and, which will please Prof. F. G. Donnan, in three Esperanto.

A cursory survey of these publications shows that a very large amount of active research work has lately been done in Japan. We can only hope that too much damage to personnel and material has not been done by the disastrous earthquake. Progress in recent years has been vigorous and determined, and the set-back, which must at the best be substantial, is surely a sad disappointment to those who have striven to build up higher education in Japan and bring their results to the notice of workers elsewhere. And it is entirely in a friendly spirit that we would remark that the imitation of Western medical research is so complete that under that name is included a good deal of work which, invaluable as post-graduate education, does not really add to knowledge, and that the free publication of these exercises increases still more the already impossible task of anyone who tries to keep abreast of advances in any but some very small corner. Will the Japanese be the first to take the step which must follow the present incoherence sooner or later, and bring up groups of scholars whose business it will be to forswear the fun of investigation and live laborious days in synthetic analysis of the data which have been already accumulated? It is a great opportunity which lies open to any school; what the world wants is discoveries not researches.

ON THE PATHOGENESIS OF DEFICIENCY DISEASE.

IN the current number of the *Indian Journal of Medical Research* Dr. R. McCarrison has published his experimental researches undertaken during the last year upon the relationship between food-metabolism, iodine intake, and thyroidal activity, as well as upon the effect of insanitary conditions upon the thyroid hyperplasia. For this purpose tadpoles and pigeons were employed. Paying very particular attention to the technique of administering fat and iodine to these creatures, he has concluded that excess of fats in the food of tadpoles causes retardation in their rate of growth, and that this can be controlled by the administration of iodine in amounts of 0·5 to 1 mg. of food mixture. The effect induced by linseed oil and cod-liver oil cannot, however, be controlled in this manner. On the other hand, abnormal metamorphoses can be induced by a high iodine intake, and can be hastened by administering at the same time a higher proportion of butter. His former experiments with pigeons have shown that an excess of butter in the diet favours the development of thyroid hyperplasia similar to that in Graves's disease; but more recently he concludes that the confinement of these birds in cages which have become grossly contaminated by excreta is also a potent cause of thyroid enlargement, and that this pathological condition is not due to lack of exercise but to actual contamination of food and water by the birds' own excreta. This can be prevented by scrupulous cleanliness and by the administration of chlorine to the water. It may be that the effects of fat excess upon thyroid hyperplasia are in some way related to bacterial contamination of the digestive tract. It is curious to note that the administration of cod-liver oil affords complete protection against goitre induced by the insanitary conditions already referred to.

X RAY DIAGNOSIS OF PREGNANCY: ITS MEDICO-LEGAL VALUE.

AN echo of l'affaire d'Evreux, which created much interest and not a little consternation in France and Belgium some time ago, is to be found in *Paris Médical* for Sept. 8th. It will be remembered that a certain Dr. Vallet was sued by the relatives of a lady, Mme. Jouenne, on whom he had operated on the assumption that she was suffering from a fibroid tumour. This unfortunate operation ended in a Cæsarean section and the death of the patient, whose parents brought an action for malpractice against Dr. Vallet. The action ended in favour of the plaintiffs, and in passing judgment on the surgeon, who had set out to remove a fibroid, and who had found a viable infant in its place, the legal authorities appeared to have been largely influenced by Dr. Vallet's omission to employ the X rays as an aid to diagnosis before operation. The author of the paper in *Paris Médical*, Adrien Peytel, Advocate of the Court of Appeal, points out that the judges seem to have convinced themselves that from the fifth month of pregnancy onwards it is increasingly easy to demonstrate the presence of a fœtus by the X rays. In his defence, Dr. Vallet maintained that the evidence of the X rays in such cases is not always reliable, and that the risk to the mother and infant are not negligible. This defence was not accepted. Was it sound? Mr. Peytel has inquired into this matter, soliciting the opinion of an expert radiologist, whose views are recorded in some detail. It would appear from the opinion of this

expert, Dr. Foveau, that if the X rays are to be employed in the diagnosis of pregnancy, specially valuable and fragile apparatus is required, the radiologist must be highly skilled, and even when these conditions are fulfilled, it may not always be possible to give a definite opinion as to the presence or absence of pregnancy. In a case such as the one under discussion it would therefore be natural for the surgeon to hesitate before recommending a diagnostic procedure which is at once costly and uncertain. If an X ray specialist can express doubts of the reliability of a radiographic diagnosis of pregnancy, the ordinary surgeon may surely be excused if he hesitates to apply this costly diagnostic test in every case of abdominal tumour about the nature of which he has doubts. Considering what a number of tests have been devised for the diagnosis of prac tically every complaint to which flesh is heir, and in view of the unreliability of many of them, it seems unfair that a court of law should lay stress on one particular test of uncertain value. If every known test of a suspected morbid condition had to be carried out before a surgeon operated, he might often find that, at the completion of these tests, the patient had passed beyond the stage at which an operation could be of any use. Judgments such as those of l'affaire d'Evreux serve the sinister purpose of encouraging the surgeon to hold his hand and leave the patient to die of "natural causes."

MONOGRAPHS IN SETS.

THE custom of selling an encyclopædia in sets only has advantages and justifications which are obvious, but we can see none for the course followed by the publishers of the five "Surgical Monographs" reviewed in our present issue. Books on such subjects as the reconstructive surgery of the upper extremity, gastro-enteroptosis, transplantation of tissues, traumatic shock, and the surgery of the spleen are only obtainable together at the price of £6 5*s*. for the set. If a tradesman were to refuse to sell an egg unless his customer bought a sausage, an onion, a can-opener, and a banana as well it would not be long before he had to put the shutters up permanently. This is, of course, the business of the publishers, but we are concerned here with the unfairness to the authors of the admirable monographs and to those purchasers who are interested, for example, in orthopædics but are not in the least concerned with abdominal surgery. We protest strongly against this innovation and trust that British authors will protect themselves from any attempt to tie their works to that of others.

THE PROBLEM OF IDIOSYNCRASIES TO MYDRIATICS.

IN *Le Scalpel* for Sept. 1st Dr. G. Kleefeld, of Brussels, has discussed a subject which is of interest to general practitioners as well as to oculists. It is that of idiosyncrasy to atropine and other mydriatics derived from the vegetable kingdom. Exact information as to the frequency with which such cases of idiosyncrasy occur is lacking, but there is no doubt as to the alarming character of the symptoms of atropine poisoning in these cases. If other mydriatics of the vegetable kingdom could be substituted for atropine, the problem would be comparatively simple, but when the patient shows an idiosyncrasy to all the plant mydriatics, it may be difficult to decide on what to do. Dr. Kleefeld records the case of a man, aged 46, suffering from acute iritis. One drop of atropine was instilled, and on the same day an eczematous swelling of the lower eyelid developed. Treatment with atropine was, however, continued, with the result that the eczema rapidly spread to the upper lip where a bullous eruption appeared. Soon it became infected, an impetiginous appearance being given to it. It was thought that the atropine used might have deteriorated, although it had proved satisfactory in other cases; but no better results were obtained with fresh or sterilised solutions of atropine. An ulcer developed on the cornea, and a hypopyon formed in the anterior chamber. Though a weak solution of scopolamine replaced the atropine, matters became worse. Then an oily suspension of homatropine was substituted for the scopolamine, but with no better results. Cocaine was then tried, again with no benefit, and in the end the instillation of mydriatics was abandoned altogether. Meanwhile the ulceration of the cornea had extended in spite of the application of astringents, and paracentesis had to be performed. An extensive leucoma developed largely because of the failure attending the use of the mydriatics. Some time later the patient was readmitted to hospital with acute iritis of the other eye. The instillation of atropine had the same disastrous effects as on the former occasion. Parenteral injections of milk were given without benefit, and changes were again rung on scopolamine, homatropine, and cocaine, but with no better results than before. Failure changed to success only when plant mydriatics were abandoned in favour of the synthetic euphthalmine, a hydrocyanic derivative of methyl-vinyl-diacetonalcamine. In a 2 or 4 per cent. solution this drug maintains mydriasis for four to five hours, during which there is no paralysis of accommodation. This drug must be used with caution for fear of glaucoma and blepharo-conjunctival catarrh, but, used as a powder and not in solution, Dr. Kleefeld has, during the past two years, found it a very effective mydriatic, and he has not known it to give rise to troublesome sequels. Its suitability in cases of atropine idiosyncrasy adds appreciably to its value.

MENINGITIS DUE TO WORMS.

Prof. P. Gautier and Dr. R. Guder,[1] of the Children's Clinic at Geneva, remark that as long ago as 1863, when Lebon endeavoured to make a distinction between the two conditions, the occurrence of meningitis due to worms in children and adults and its resemblance to tuberculous meningitis had been described. Subsequently numerous cases of meningitis due to worms were published, but were regarded with scepticism by many critics who looked upon them rather as examples of meningism or pseudo-meningitis, owing to the occasionally mild and vague character of the clinical symptoms and the absence of any obvious changes in the meninges caused by the presence of the intestinal parasites. It is only recently that the cerebro-spinal fluid has been studied in detail, as in the cases recorded by Guillain and Gardin, and Lancelin, as well as in one which came under the present writers' observation in a boy aged 5 years. The clinical symptoms in all three cases were identical with those of tuberculous meningitis, but disappeared after expulsion of the intestinal parasite, which in the case of Guillain and Gardin was *Ascaris lumbricoides*, and in those of Lancelin and the present writers *Tænia solium*. Apart from the absence of the tubercle bacillus the changes in the cerebro-spinal fluid—viz., hypertension, lymphocytosis, excess of albumin and cells, and a positive Pandy's reaction—were the same as in tuberculous meningitis. As regards the pathogenesis of the condition which, owing to the changes in the cerebro-spinal fluid is undoubtedly meningitis, the reflex theory no longer holds good, and the only satisfactory explanation is the action of the toxins of the worms on the meninges and nerve centres. The presence of these toxins has been proved experimentally by Simonin, who by injecting extracts of different worms into animals was able to produce nervous symptoms, such as tremors, contractures, and paralyses. In the human subject, as Guillain and Gardin point out, the meningeal symptoms are doubtless produced by the toxins of the parasites reaching the cerebro-spinal fluid by the choroid plexuses or the blood-stream. Several suggestions have been made to explain the rarity of this form of meningitis in spite of the frequency of helminthiasis, such as the condition of the intestinal canal favouring the toxic action of the parasites, the greater toxicity

[1] Revue médicale de la Suisse romande, September, 1923.

of the worms at certain times, and the increased permeability of the intestinal wall. The chief cause, however, is to be found in the neuropathic character of the individual, as is shown by the fact that in many of the cases there was a history of nervous antecedents such as convulsions or Little's disease. A clinical diagnosis between this condition and tuberculous meningitis will be difficult if not impossible, apart from the therapeutic test. In any cases of doubt, therefore, an anthelmintic treatment should be tried. In cases of tuberculous meningitis it will do no harm, while, if intestinal parasites are responsible for the condition, a rapid and complete cure will be effected.

SYPHILIS OF THE ORBIT.

Dr. Jarold E. Kemp,[1] of the Syphilis Department of the Medical Clinic, Johns Hopkins Hospital, who records four personal cases due to acquired syphilis, remarks that syphilis of the orbit, first described by Boerhaave in 1749, is a rare manifestation of the disease, not more than 150 authentic examples having previously been published in either acquired or congenital syphilis. The condition was found in only 5 of about 6000 cases of syphilis at the Johns Hopkins Hospital, and in only 17, or 0·013 per cent., of 130,000 patients with all types of eye disease seen in the Leipzig Clinic prior to 1909 (Birch-Hirschfeld). In most cases the periosteum is first involved, and the bone is secondarily invaded, but in some cases there is a true syphilitic osteitis. The histological appearances are the same as in gummatous processes in the soft tissues, and sometimes cannot be distinguished from tuberculosis. The earliest symptom is pain, which may precede the other symptoms by weeks or months, and is usually nocturnal or constant with nocturnal exacerbations, and is intensified by pressure over the globe and on attempting movements of the affected eye. It often radiates over the side of the head involved, and may be referred to the circumference of the orbit. Exophthalmos is practically constant, but its degree depends upon the situation and duration of the lesion. In the early stage it is absent or slight, but later it becomes very pronounced. As the result of pressure on important structures within the orbit—viz., the optic nerve, blood-vessels, and motor and sensory nerves—a number of other symptoms appear. In the early stage, when pain is the most prominent symptom, there may be little or no disturbance of vision, and ophthalmoscopic examination reveals only slight haziness of the disc and congestion in the vessels. In a later stage loss of vision and changes in the optic nerve, such as unilateral choked disc followed by secondary optic atrophy, set in. Ocular palsies, such as internal, external, or complete ophthalmoplegia, may occur, and are determined by the site of the lesion and the nerves involved. Numbness and tingling of the skin of the forehead and cheeks from pressure on the first and second branches of the trigeminal nerve is a frequent complication, and on examination complete anæsthesia, hypæsthesia, or hyperæsthesia of the skin supplied by these nerves is found. Trophic lesions of the lids and cornea are sometimes present. Pressure on the arteries and veins gives rise to congestion and œdema of the lids, chemosis of the bulb and conjunctiva, and sometimes dilatation of the temporal vessels. The most serious complication of orbital syphilis is rupture of the gummatous process into the neighbouring cavities, such as the cranial cavity, and nasal and paranasal air spaces, giving rise to secondary infection and fatal meningitis. In the absence of treatment the prognosis of orbital syphilis is bad. Not only is complete blindness almost certain to occur from secondary optic atrophy, as in one of Dr. Kemp's cases, but there is always the risk of fatal meningitis. The lesion usually heals more slowly in congenital than in acquired syphilis. Under early and vigorous treatment the results are often brilliant, as in two of Dr. Kemp's cases, in which the pain was relieved and the vision restored to normal by a few doses of arsphenamin.

[1] Archives of Dermatology and Syphilis, August, 1923.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XLI.—TREATMENT OF RETENTION OF URINE.

RETENTION of urine is caused by a number of widely differing factors, which may be grouped under three headings—mechanical, reflex, and nervous. It may, moreover, be complete, when no urine whatever can be passed and the distension of the bladder gives rise to intense pain (acute retention), or incomplete, where the patient can pass a certain quantity of urine but cannot empty his bladder. The residue left behind varies from a few drachms to several pints; clinically a distinction between cases with over-distension and those without is important, as the treatment should be varied according to the amount of distension present. It is not attempted here to deal with the treatment appropriate to all the different types of retention; I will confine myself to some of the most common of the difficult problems.

Retention Due to Stricture.

Retention following stricture may be due to several causes. (*a*) Impermeable stricture (so tight that no urine can pass through it) is rare, because the patient usually comes for relief long before this stage is reached. (*b*) In cases of moderately tight stricture, retention may follow excess in alcohol, over-indulgence in food, or constipation. (*c*) Even in cases of large calibre stricture retention often follows dilatation, especially if several instruments, or too much force, have been used. (*d*) An acute urethritis often causes retention in patients with stricture, of whatever calibre.

(*a*) In cases where the stricture is so narrow that it causes complete, or almost complete retention, attempts should be made to pass a very small (2 or 3 F.) gum elastic bougie; if it passes easily it may be followed by others, until the size which is gripped by the stricture is reached. The patient will probably then be able to pass urine, and further dilatation should be postponed for a few days. If, however, there is considerable difficulty in passing the finest filiform, it should be tied in place and the patient put to bed. The urine will trickle alongside the bougie, and can be collected in a urinal. On successive days this operation should be repeated, increasing the size of the bougies until the patient is able to pass urine naturally. Subsequently the stricture should be gradually dilated at weekly intervals. If no instrument can be passed at the first attempt, the patient should be put to bed and given an enema, followed by 30 ℥ tr. opii and a hot bath. If no urine is passed in the bath, a second attempt to insert a filiform should be made, and, if necessary, a third, under anæsthesia. If a filiform can be introduced it should be followed by the guide of a urethrotome, and an internal urethrotomy performed. If no instrument can be passed under anæsthesia, a Wheelhouse operation should be performed immediately. Soft gum elastic bougies are the safest instruments for dealing with tight strictures. Fine whalebone or metal bougies are dangerous on account of the ease with which a false passage is made. Occasionally a gum elastic bougie coils up in the urethra without passing the stricture, when the coil can be felt by palpating the perineum. It is useless to attempt catheterisation unless the urethra will admit a No. 6 F. bougie easily.

(*b*) Retention following alcoholic excess is due to congestion. A moderate-sized bougie (6 to 10 F.) usually passes easily, and if the patient cannot then empty his bladder the urine should be drawn off by means of a fine catheter. The patient should be given a brisk purge (calomel, followed by salts) and sent home to bed. In rare cases the catheter must be passed night and morning for a few days, but it is better not to attempt regular dilatation until spontaneous micturition is well established.

(*c*) Retention following instrumentation is also due

to congestion, and is usually of short duration. If the patient is in distress, either a bougie or catheter about two sizes smaller than the last instrument used may be inserted, but not till the purge, followed by a hot bath, has failed. Intermittent dilatation should be carried out very slowly by one size at each sitting, since retention follows too rapid dilatation. If it is essential to dilate a stricture rapidly, internal urethrotomy is much safer and more efficacious than forced dilatation.

(*d*) In cases of stricture complicated by acute urethritis retention is caused either by the severity of the urethritis or by the use of too strong injections or irrigations. A catheter should not be used unless all other methods (purges, hot baths, sedatives, &c.) have failed. The urethra should first be washed out with sterile saline or very dilute (1 in 12,000) oxycyanide of mercury solution, when a small soft catheter may be passed; acute retention is the only indication for passing an instrument along an acutely inflamed urethra.

Retention Due to Foreign Bodies Impacted in Urethra.

This is almost invariably due to impacted calculi, as foreign bodies introduced from without tend either to pass into the bladder, or are small enough to be expelled by the flow of urine. A stone may be impacted (*a*) in the posterior urethra, when it should be pushed back into the bladder by means of a full-sized steel sound, and immediately crushed; (*b*) in the bulb if the urethra is strictured, when it is best to cut down on the urethra, remove the stone, and at the same time divide the stricture; or (*c*) in the fossa navicularis, whence it can be removed by means of a fine forceps, after section of the meatus itself.

Prostatic Retention.

In cases of prostatic abscess, which is the most frequent cause of retention occurring in the course of an acute gonorrhœa, spontaneous micturition is always re-established as soon as the pus is evacuated, and the patient should not be catheterised unless it is impossible to operate immediately. The prostate should be exposed in exactly the same manner as in perineal prostatectomy, and both lobes should be incised and drained. It is a mistake to open these abscesses either through the rectum or urethra, as troublesome fistulas result. In cases of acute prostatitis, a catheter should be passed if the retention is complete, or if the bladder can be felt rising above the pubis after micturition. The urethra should be irrigated with a very mild antiseptic beforehand, and the bladder should also be washed out after the urine is evacuated. The utmost gentleness is necessary in treating these cases, as rough instrumentation may result in an abscess.

Prostatic obstruction in elderly men is due to benign or malignant enlargement of the gland. The radical treatment of this type of obstruction is, of course, prostatectomy, and catheterisation should be looked on either as a preliminary to removal of the gland, or as a palliative measure in cases where operation has been refused or is definitely contra-indicated.

(*a*) *Benign Enlargement.*—Three types of retention are met with in these cases: partial retention without distension, partial retention with distension, and complete retention. In the first type, it is better not to pass any instrument until operation has been decided on, especially if the abdomen is resonant down to the pubis, and the bladder cannot be felt after micturition. A rough estimate of the amount of residual urine can be obtained by bi-manual palpation, with a finger in the rectum. When the patient is in hospital a catheter must be passed to carry out renal function tests, and the residual urine should be measured at the same time. The chief exceptions to this rule are: (1) cases where malignancy of the prostate is suspected, when the bladder should be emptied to facilitate examination of the gland; (2) where the symptoms suggest the presence of a new growth of the bladder, &c., in addition to prostatic enlargement, when an early cystoscopy is indicated. In the second type of case, the bladder can be felt as a pear-shaped tumour in the lower abdomen, which often extends as high as the umbilicus. These patients usually have overflow incontinence and badly damaged kidneys, and are always in a critical condition. The sudden emptying of an over-distended bladder is usually followed by severe hæmaturia, which may end in complete suppression of urine. It is therefore necessary to evacuate the contents of the bladder very slowly, and the treatment should not be commenced until the patient has been put to bed. A catheter, armed with a spigot, may then be introduced and tied in place; the spigot is removed every hour, from four to five ounces of urine allowed to escape. If the urine drains away too quickly a corresponding amount of sterile saline should be injected into the bladder. The patient should drink at least five pints of barley-water, or some other diuretic fluid daily. The height of the bladder tumour should not fall by more than an inch a day. Once it is completely emptied (after four to five days) it must on no account be allowed to refill, and either a one- or a two-stage prostatectomy (according to the renal efficiency) should be performed. Many surgeons prefer to do an immediate cystotomy on these patients, and to empty the bladder slowly through the suprapubic tube. Either method is satisfactory if strict care is taken to avoid infection. When complete retention follows a chill, indiscretion of diet, or occurs without obvious cause, the power of spontaneous micturition generally returns in a few days, but occasionally the retention becomes chronic. Acute retention is always exceedingly painful, and demands instant catheterisation; the withdrawal of 15 oz. will completely relieve the patient, who should then be put to bed. If his bladder is distended it should be emptied by slow drainage, described above; if not, it may be completely emptied by a catheter passed three times in the 24 hours.

(*b*) *Retention Due to Malignant Disease of the Prostate.*—The same types of retention occur as in cases of simple enlarged prostate, but the malignant gland does not as a rule give rise to marked obstruction until the tumour is inoperable, so that a permanent cystotomy is usually the only possible operation. It should be performed early, and catheterisation should only be looked on as a preliminary to this operation.

Clot Retention.

This difficult and painful type of retention is caused by any hæmorrhage copious enough to allow of the blood coagulating in the bladder. The hæmorrhage may come from the posterior urethra (false passage), from the prostate (rupture of a small vein on its surface), from the bladder (hæmorrhage from a new growth), or from the kidneys (trauma or new growth). When the source of the hæmorrhage is diagnosed, it is still difficult to decide whether the bleeding is progressing or has ceased. In the former case the hæmorrhage should be checked before emptying the bladder, in the latter the bladder must be emptied first. If the blood is bright-red the bleeding is usually active; if a black tarry mixture of blood and urine is withdrawn it has ceased. The clots should be washed out by means of a large metal catheter, since small instruments quickly become blocked with blood-clot. If this happens, a small quantity of lotion (about one or two ounces) may be forced through the instrument by means of a powerful syringe to clean it. The bladder should be syringed out until the lotion returns clear, which may take an hour. In extreme cases a Bigelow's evacuator may be required. When the bladder is free from clot a soft catheter should be tied in, and the patient encouraged to drink as much as possible. If the hæmorrhage is continuing an immediate operation is necessary. In renal cases there is usually little difficulty in diagnosing the side affected. If the bleeding comes from the bladder itself, or from the urethra, a cystotomy is indicated. The clots should be turned out, and the hæmorrhage controlled either by removal of the cause or else by packing.

J. SWIFT JOLY, F.R.C.S.,
Surgeon, St. Peter's Hospital for Stone, &c.

Special Articles.

THE REMUNERATION OF INSURANCE PRACTITIONERS.

THE following letter has been received from the Ministry of Health in reply to the communication from the Insurance Acts Committee of the British Medical Association (see THE LANCET, Oct. 13th, p. 849), and it will be seen that the Minister of Health definitely declines to accede to the recommendation of the Committee that the question at issue should go to arbitration.

SIR,—The Minister of Health has given most careful consideration to your letter of the 8th instant indicating the views of the Insurance Acts Committee on the offer to insurance practitioners made in my letter of the 3rd instant.

The Minister does not propose to return a detailed answer to your letter. He does not, of course, accept the statements and arguments in that letter as accurate or sound, but he thinks the main issue will only be obscured by prolonging paper controversy. Lest there be any ambiguity as to the position, he desires me to state quite clearly that the offer made in my letter of the 3rd instant represented a considered decision given by him in a matter in regard to which the responsibility rests on him as a Minister of the Crown. Before arriving at that decision he naturally weighed to the best of his power the claim and the representations made on behalf of the profession and the views of the approved societies. But the decision is his decision, arrived at on the merits of the case. He maintains the view that the alternative offers made represent a settlement fair alike to the profession and to the insured population. He most earnestly hopes that on a fuller consideration the profession may see their way to accept one of the alternatives, knowing, as he does, that they realise the undesirability of prolonged controversy on a matter of this kind.

He would wish me to say something only on two points in your letter, the question of rural practitioners and the question of arbitration.

As regards rural practitioners, he is very sensible of the peculiar difficulties of their position, and is very desirous of finding a remedy. The matter is now receiving his serious consideration, but, as already stated, he does not think that it can or should interfere with a settlement of the general capitation fee, the administrative objection to differential capitation fees being overwhelming.

As regards the question of arbitration, the Minister cannot forget that the basis of remuneration was exhaustively considered by an arbitration tribunal some three years ago, and he has accepted their award as one of the data on which the Government's offer has been determined. Any further arbitration would lead to undignified disputes between the doctors and the approved societies, which are to be deprecated in the interests of successful working of the panel system, and the Minister himself has in fact regarded his position as that of an arbitrator with the added responsibility of his Ministerial duty.

I am, Sir, your obedient Servant,

(Sgd.) W. ARTHUR ROBINSON.

Dr. Cox, the Medical Secretary of the British Medical Association, has sent the following reply :—

SIR,—I beg to acknowledge receipt of your letter of the 15th October. The Committee understands :

1. That the Minister is unable to accept the suggestion that arbitration offers a method of arriving at a peaceful arrangement.

2. That he is unwilling to allow any further negotiations until he has been convinced by some other method that it is impossible for him to obtain a satisfactory service under his present offer.

The Committee would have preferred the method either of arbitration or of negotiation, but has no option but to accept the responsibility he now imposes on it.

The Committee's position is (1) that on the purely economic question, on which it is still prepared to negotiate, the remuneration the Minister suggests is insufficient, and that there has so far been no real answer to the facts and conclusions set out in the Committee's first memorandum M 1 and the accompanying statement by Professor Bowley.

(2) That no national medical service based on an insurance system can be satisfactory unless it attracts all types of general practitioners in sufficient numbers and so supplies the industrial population, whether in town or country, with that choice of doctor and satisfactory service which obtains among other classes of the population.

(3) That while willing to serve the community to the best of its ability and to make any satisfactory arrangement to this end with the representatives of the community, the profession is not prepared to accept the position of being under the dominance or control of a particular section.

(4) That arrangements consistent with these principles can be agreed to by the Committee, and would not, in its opinion, involve any further contribution from the taxpayer or any diminution of the benefits to which insured persons are entitled.

I am, Sir, your obedient Servant,

ALFRED COX,
Medical Secretary.

INSURANCE PRACTICE: CONFERENCE AT THE MINISTRY OF HEALTH.

A Conference, presided over by Sir Arthur Robinson, the First Secretary to the Ministry of Health, accompanied by other officials of the Ministry, took place on Tuesday, Oct. 16th, between representatives of the Consultative Councils of Approved Societies and representatives of the Insurance Acts Committee of the British Medical Association. The Conference met to discuss certain outstanding questions relating to the scope and character of the service to be provided by insurance practitioners. The question of the remuneration of insurance practitioners was not discussed.

Sir Arthur Robinson reported to the Conference that some misunderstanding existed in regard to a statement attributed to Dr. Brackenbury, the chairman of the Insurance Acts Committee, and said to have been made by him at a Conference of Local and Medical Panel Committees held on June 7th, to the effect that the Insurance Acts Committee could not agree to the claim that every practitioner should do for his insured patients all the things which he was accustomed to do for his private patients.

In order to remove any misapprehensions in this matter, Sir Arthur Robinson quoted the exact words used by Dr. Brackenbury, which were as follows :—

"Everything which was, properly speaking, of a general practitioner kind should be within the service, and everything which was properly of a specialist kind, whether performed by a man who did that thing only, or by a general practitioner who had made himself specially skilled in that thing, should be outside the service. This division had been attempted by the Insurance Acts Committee in the form of two schedules, one showing the services included in the contract, the other the services not included. What a general practitioner did as a general practitioner was inside, what a general practitioner did as a specialist was outside. The claim that every practitioner should do for his insured patients all the things which he was accustomed to do for his private patients was not one to which they could agree for one moment. In so far as a general practitioner was in any degree a specialist, his specialist services were outside the contract, and he should have a right to charge for them."

LABOUR PROPOSALS.

The General Council of the Trades Union Congress and the Labour Party National Executive have prepared a pamphlet dealing with National Health Insurance Medical Benefit. They recommend as a basis of the panel service :—

Free choice of doctor.

Limitation of panel lists to 2500, or 4000 when an assistant is kept.

Panel doctors not to be permitted to keep more than one assistant except in special circumstances. Partners to be regarded as permanent deputies.

Better surgery accommodation.

Simplification of the certificates which doctors must sign.

Revision of the system of dealing with so-called "excessive prescribing."

More effective means of securing the removal of unsatisfactory doctors from the panel.

An agreement for a period of five years.

If requirements effectively fulfilled, a capitation fee of substantially 9*s.* 6*d.*

Institution of dental benefit and provision of increased diagnostic facilities at earliest possible moment.

Suggestions as to revision of methods of financing National Health Insurance are also included in the pamphlet.

TUBERCULOSIS.

Trudeau Sanatorium.

THE thirty-eighth annual medical report of the Trudeau Sanatorium might well be described as a text-book of tuberculosis, with this difference that while most text-books contain much out-of-date information, this report deals with the latest experiences of some of the most eminent tuberculosis specialists in the U.S.A. In his introduction, Dr. Lawrason Brown refers to some very interesting work carried out by Dr. Petroff and Prof. Zinser at Columbia University on skin hypersensitiveness. They attempted to produce it by the use of tubercle bacilli killed by various degrees of heat, and also by the use of two fractions of the tubercle bacillus obtained by hydrolysis. They discovered two bodies, one a mixture of nucleoproteins which produced hypersensitiveness and a skin reaction, and another body which does not produce hypersensitiveness, although it causes a more pronounced skin reaction than the first body. Many interesting problems have been opened up by these investigations which are still proceeding. Dr. Lawrason Brown's essay on tuberculin as a diagnostic agent is worth reading by the many who have abandoned it on account of the mischief with which it has been credited.

"For more than 20 years we have used the subcutaneous tuberculin test, and have encountered no untoward results of any moment. When I pause to think to-day of the chances we ran in giving the test to many patients with extensive pulmonary tuberculosis but few physical signs, I am convinced that, given as we give it to-day, the tuberculin test is never harmful. We use it only in patients with doubtful or slight parenchymatous X ray lesions, in whom other sufficient data are lacking. Should the test prove to be negative, we return the patient to his home and work, telling him that if he should ever wish to re-enter the institution, we will take him in at once. So far no such patient has ever applied for readmission."

It is strange, but true, that Trudeau Sanatorium, to which tuberculosis specialists all the world over look for inspiration is, according to the grading of the American Sanatorium Association, only a Class B institution. This system of grading was instituted by the National Tuberculosis Association because unsatisfactory conditions were found to exist in many sanatoriums where buildings, equipment, personnel, and service were inadequate. Trudeau Sanatorium lapses into Class B chiefly on account of the lack of infirmary beds; the sanatorium which admits various grades of patients should, if it wishes to belong to Class A, have from 25 to 50 per cent. of all its beds so-called infirmary beds. This standard reflects the growing tendency to regard rest rather than exercise as of therapeutic importance in tuberculosis, and probably most sanatorium physicians with long experience would agree with Dr. Lawrason Brown in his verdict that "the treatment of patients has slowly but definitely changed in the last 22 years."

The Rigours of the Tuberculosis Campaign in Illinois.

The Public Health Department of Illinois has issued a pamphlet dealing with the regulations, put into force since Jan. 1st, 1923, for the control of tuberculosis. It is customary in England to mention, more or less as an after-thought, the penalties attaching to the contravention of a given law. The Illinois public health authorities introduce their readers to the subject under discussion by informing them that health or other officers, not complying with the regulations, are subject to a fine of $200.00 for each offence, or imprisonment in the county gaol for six months. It would seem to be incumbent on practically every person in Illinois to notify tuberculosis to the health authorities, for Rule 1 runs thus:—

"Every physician, laboratory director, nurse, or other attendant, superintendent of any hospital, asylum, orphanage, gaol, or similar institution, teacher in any school, proprietor or manager of any business, hotel, lodging or boarding house, parent, guardian, householder or any other person having knowledge of a known or suspected case of tuberculosis, shall immediately report such known or suspected case of tuberculosis in writing or by telephone to the local health authority."

According to Rule 4, no person suffering from active or open tuberculosis shall share a bedroom with any other person unless that person is also tuberculous or a nurse under the direction of a physician. There are several other rules conceived in the same spirit. After having made it abundantly plain that to be convicted of tuberculosis may be tantamount to ostracism and persecution, the health authorities of Illinois are perhaps unduly hopeful in expecting a ready response to their plea for early diagnosis.

Yorkshire Tuberculosis Society: Artificial Pneumothorax Work in Dispensary Practice.

On Sept. 29th, at the Tuberculosis Dispensary, Sheffield, Dr. J. Rennie, the President, in the chair, Dr. C. Rolleston, M.O.H., Rutland, gave a paper on artificial pneumothorax work in dispensary practice, the object of which was to demonstrate that such work could be domiciliary and ambulant. The population concerned was 66,000—half in a county borough (occupation engineering), half agricultural, and scattered over 150,000 acres. Annual deaths from phthisis, 49; notifications, 96. The work was begun seven years ago, in which time pneumothorax had been attempted in 71 patients (30 male, 41 female), whose ages ranged from 14 to 60 years. Nine of the 71 had unilateral disease, 59 bilateral, in 53 of whom the affection of the worse lung was in the third stage. The remaining three had bronchiectasis. Sixty-five of the 71 showed positive sputum. The number in whom pneumothorax was established was 50.

Technique.—Injections of 300 c.cm. for the first operation, and not more than 500 subsequently; larger doses might lead to mediastinal dislocation and pleural effusion. The operation was performed twice a week for the first month and once weekly for the next two or three months, all this at the patient's home. Thereafter, generally at the dispensary, twice a month up to six months, and then every three weeks. 1883 punctures had been performed, with no fatalities. Alteration in the manometer reading from change of posture was noticed; in a contracting pneumothorax one was enabled to introduce more air by changing the patient from the dorsal position to the prone, or vice versa.

Results.—The severe nature of the disease, detailed above, must be considered. Thus of the 21 patients in whom pneumothorax was *not* established, owing to adhesions, 14 were dead, and in only 3 of the remaining 7 could the condition be deemed satisfactory. But of the 50 with an artificial pneumothorax the result was excellent in 11, good in 15, equivocal in 3. Some of those who had died, 21 in number, had been afforded temporary relief, being enabled to return to work, or the sputum becoming negative. Two such showed well-marked bilateral disease on X ray examination. The most frequent cause of death was spread to the other lung, laryngeal and intestinal affection occupying the second place. Many failures must be due to postponement of the operation.

General Observations.—Pleural adhesions were hard to diagnose beforehand. Only 13 patients gained weight, the amount varying from 1 lb. to 54 lb. No effect on pyrexia and quick pulse was recorded in 26 cases. In 11 with a normal temperature the pulse was brought down, though sometimes that took months. In seven instances both temperature and pulse were abated. Thus the effect of pneumothorax on pyrexia and tachycardia varied, and the rapid defervescence so often described was rare. Displacement of the heart was noted in 21 left-sided and 15 right-sided pneumothoraces. Cardiac murmurs occurred six times, two being certainly functional. Displacement was an early event, and might persist for years without inconvenience. Six cases of mediastinal dislocation were diagnosed. In a successful

case sounds conducted from the collapsed lung were heard on the healthy side. Subcutaneous emphysema was of prognostic value. Thus of 24 cases that had done well, only 2 showed marked emphysema and 17 had none. But 18 unsatisfactory ones had it. Pleurisy occurred in 21 of the 50 cases, generally early; 18 of the 21 had temporary fever. Pleural effusion was difficult to demonstrate; there might be much splashing, but no yield from exploratory punctures. The after-history of two cases sent to Mr. Romanis for thoracoplasty [1] was given. The lecturer advised the provision of motor-cars for tuberculosis officers in sparsely populated districts, as tending to save dispensary accommodation.

Dr. W. C. Rivers, to show that, as evidenced in recent foreign literature, X ray control was not essential, exhibited a patient who three years ago was given three months to live. Now, a year after leaving off refills, there was well-nigh perfect recovery. This case had never been X rayed. On the other hand, he showed pneumothorax skiagrams taken by highly skilled hands which told nothing. He welcomed the paper as inspiring, and gave four differential signs between pleural and pulmonary oscillations.—Dr. C. Woodcock gave some experiences. He had heard an adhesion rupture, seen the uvula emphysematous, and had a case of embolism. He held the frequently advanced opinion that the symptoms of embolism could arise also from pleural shock. A slow induction was best. He agreed with the lecturer that intestinal disease was a contra-indication; laryngitis was not. He thought oxygen gas and a small needle of use in avoiding pleurisy. Dumarest was right in advising that a pneumothorax, if it had to be relinquished, should be left off gradually. The speaker had used pneumothorax for stopping hæmoptysis.—Dr. Z. Fernandez thought that whatever the future rôle of current bacteriological means of treatment might be, these were not specifics, and could not oust lung compression therapy in appropriate destructive lung disease or in obstinate, severe hæmoptysis. Artificial pneumothorax certainly had its failures. In 1921 70 patients were traced who had been under treatment by present or former colleagues from 1912 onwards; 60 per cent. of the 70 were dead; 60 per cent. were dead, too, of 134 cases treated from 1915 to 1920. Coming to more immediate results, 48 sanatorium cases in 1921 and 1922 showed a death-rate of 30 per cent., the material being progressive Stage II. and III. cases. It had been argued that the treatment had not appreciably bettered the Leeds tuberculosis death-rate over that of other Yorkshire county boroughs. In Leeds the bronchitis death-rate was proportionately smaller, however, than in other areas which had a smaller tuberculosis death-rate. In hæmoptysis pneumothorax treatment was now routine, the patient being transferred to hospital when the bleeding had been controlled. As to re-administration of artificial pneumothorax, two of the speaker's cases in which treatment was commenced in 1917 had recurrence on three different occasions, and no difficulty was met with in finding free pleura again. One out-patient had had over 70 refills in four years. Some cases did not require prolonged treatment. The continental technique, recently witnessed by the speaker, of fixed cylinders and rubber bags, was far behind work in England, though in thoracoplasty and in X ray work the continent was ahead of us.—The President and Dr. Keating recommended trial of artificial pneumothorax in dispensary practice.

[1] See THE LANCET, 1923, i., 531.

DEMONSTRATIONS OF CLEAN MILK PRODUCTION.—The British Dairy Farmers' Association, in conjunction with the Ministry of Agriculture and Fisheries, and the National Institute for Research in Dairying at Reading has made arrangements for demonstrations on the production of certified and Grade "A" (tuberculin tested) milk to be given at the Dairy Show to be held at the Agricultural Hall, Islington, London, N., from Oct. 23rd to the 26th.

THE LONDON MEDICAL EXHIBITION.

(*Concluded from p. 855.*)

IN THE LANCET of last week we enumerated the exhibits of drugs and foods at the London Medical Exhibition, Central Hall, Westminster, Oct. 1st to 5th. The following is an account of the surgical instruments and appliances, and scientific apparatus demonstrated by many well-known firms, and which are likely to be of interest or service to the medical world. To this we add a description of the various prepared milks and milk-foods shown, some notes on the merits of certain British spas represented at the exhibition, and we mention the chief medical publishers who showed many of their new and forthcoming publications.

It is safe to say that no medical man visited the exhibition without seeing something—in one or more of the many sections—which he carefully noted in his memorandum book as likely to be useful in practice. Recent improvements made in the larger exhibits, such as X ray installations, operating tables, &c., could not fail to stimulate interest even in those whose means excluded purchase, but among the many minor appliances embodying some new principle or modification the practitioner would readily pick out some useful piece of apparatus. The same might equally be said of the drugs and foods section; although the therapeutic action of any particular medicament is not demonstrable in five minutes at an exhibition stall, nevertheless the physician could satisfy himself conveniently as to the physical and æsthetic properties of any preparation.

Surgical Instruments.

Mayer and Phelps, Chiron House, 59–61, New Cavendish-street, London, W., in addition to a wide selection of instruments and apparatus for general and regional surgery, made particularly prominent the Reavell-Moseley electric rotary pump for pressure and suction. This is an ingenious and useful apparatus for many purposes, among them being the removal of blood and secretions from site of operations, saving much time in swabbing, the aspiration of the chest and abdomen, and the evacuation of cysts. This is a very silent running piece of apparatus, and is easily portable.—Down Bros., Ltd., St. Thomas's-street, London, S.E., among their wide range of surgical instruments of new and existing patterns made prominent the Ivan Magill new portable intratracheal apparatus, and drew special attention to a new form of self-locking guillotine.—Surgical Mfg. Co., Ltd., Mortimer-street, London, W., and Regent-street, Glasgow, in addition to their attractive exhibit of surgical instruments, operating tables, and various surgical appliances, drew special attention to their new form of "Barton" sphygmomanometer. They also make an instrument for consulting-room use, which is attractively fitted in an oak cabinet.—At the stall of Charles Hearson and Co., Ltd., 14, Princes-street, Hanover-square, London, W., were to be seen a large assortment of bacteriological, pathological, physiological, and botanical apparatus, as well as refrigerating plant suitable for laboratories. Two notable features were the bath for the preparation of "defatted" antigens of bacteria—diaplytes, to use the term suggested by Prof. G. Dreyer (vide THE LANCET July 7th, p. 40), and an apparatus for crushing bacteria. The latter, the Thomson bacteria crusher, is made of stainless steel, so that disinfection of the apparatus may easily be carried out, and the knife revolves at from 1000 to 10,000 revolutions per minute. The cuts are made at the rate of 25,920,000 per minute. The bacteria suspended in solution to about 5 c.cm. in volume are totally crushed within 20 minutes and tests which have been made immediately on suitable media have proved negative after the usual period of incubation.—Fassett and Johnson, Ltd., 86, Clerkenwell-road, London, E.C., showed a wide selection of surgical plasters, medicated plasters, surgical dressings, gauzes, and ligatures, as well as dental requisites.—F. G. Ernst, 80–82, Charlotte-street, London, W., showed orthopædic appliances in great variety and made a special feature of ambulatory splints for use in cases of fracture and rheumatoid osteo-arthritis, and Lewis and Sons, 2, Westmoreland-street, New Cavendish-street, London, W., orthopædic appliances of many kinds and surgical instruments in variety. Particularly notable was their improved pattern of Thomas' calliper splint, which is moulded to conform with the tuberosity of the ischium.—Aurorascope Co., Ltd., 18–19, Fulwood House, Fulwood-place, London, W.C., exhibited an ingenious apparatus by which perfect illumination of the ear, throat, nose, mouth, and teeth can be obtained. The instrument can be used for transillumination of the antrum and in retinoscopy and is

very portable.—T. Holland and Sons, 46, South Audley-street, London, W., exhibited a large assortment of foot supports, one of the newest being comprised of leather and sponge rubber, and boots for deformities, flat foot, and so forth, were also shown; Scholl Mfg. Co., 1–4, Giltspur-street, London, E.C., a great variety of arch supports and appliances for defects of the feet; and Babers, 309, Oxford-street, London, W. (and at Jersey), boots and shoes of various kinds for correcting deformities of the foot. An interesting novelty among plantar arch supports was shown by the John D. Miller's "Pneumatic" Foot Comforts, 71, New Bond-street, London, W. 1. The invention consists of an air cushion attached to a thin leather sole, and is soft, pliable and extremely light in weight. It has the very great advantage of being easily adjusted by the wearer by means of a clever little valve and pump (supplied to each purchaser of the supports), so as to retain throughout the period of the progressive correction of the arch of the foot, just that amount of support required. Another excellent point about it is that being so pliable, it readily adapts itself to every movement of the foot in walking.—H. E. Curtis and Son, Ltd., 8, Old Cavendish-street, W., had an attractive display of "Curtis" belts, supports and trusses, and elastic stockings, particularly noticeable being the colostomy support which is an adaptation of their original abdominal support for use in cases of active colostomies, affording a general abdominal uplift, a rigid and non-leaking joint at the seat of the opening, and an adjustment that provides ready access to, and removal of, the cup and its contents. The trusses, for all forms of abdominal hernia, proved to be particularly light in weight. A feature of this stall was Colonol, a medicinal liquid paraffin of Russian origin.—Domen Belts Co., Ltd., 456, Strand, London, W.C., showed belts for use in pregnancy, accouchement, umbilical hernia, floating kidney, and gastroptosis, as well as bandages, corsets, and back supports. The belts of this firm are based on physiological principles and received much attention from visitors.—A. G. Sheldon and Co., 59, Weymouth-street, London, W., called attention to a useful exhibit of sterilised surgical dressings and accouchement outfits in sealed packages, which may be obtained according to surgical requirements at any hour of the day or night. They also showed a breast binder and an antenatal binder which possess merit.

Kodak, Ltd., Kingsway, London, W.C., had a remarkable display of reduced negative and positive transparencies on Eastman Commercial and Process Film, and by comparison the value of the increased speed of the new Super-speed Dupli-Tized Films was easily demonstrated.—Messrs. C. Baker, 244, High Holborn, London, W.C., had a display of microscopes, and Ogilvy and Co., 18, Bloomsbury-square, London, W.C., showed microscopes of different kinds, blood-counting apparatus, optical lanterns, and optical appliances for research workers, and especially drew attention to a new electric microscope illuminating apparatus, the feature being an opalite electric bulb with iris diaphragm to suit any voltage.—Sterling Corporation (Great Britain), Ltd., 16, Wigmore-street, London, W., displayed a very efficient and portable high-frequency generator. Made in two styles, with a large selection of applicators, these outfits are ideal for the consulting-room.

X Rays, Ltd., 11, Torrington-place, Gower-street, London, W.C., among their many machines for the application of electricity to the treatment of disease and for diagnostic use, showed a new form of apparatus for treatment by high-tension electrical currents.—De Vilbiss Co., Ltd., West Drayton, Middlesex, nose and throat sprays and an electrical heater for keeping solutions warm in the consulting-room.—Tintometer, Ltd., Colour Laboratories, Salisbury, showed Lovibond's colour scale and Tintometer apparatus for registering the colours of substances, Dr. Dudley Corbett's Radiometer, and the improved form of Oliver's Hæmoglobinometer.—De Trey and Co., 23, Swallow-street, Piccadilly, London, W., exhibited their sterilisers and stainless hypodermic needles.—John Dowell and Sons, Ltd., Globe Works, Chatsworth-road, Clapton-park, E., showed an ingenious infant feeder of the "dummy" shape but designed to administer honey, dill-water, &c., in small quantities.

"Acousticon," Acousticon House, Hanover-street, London, W., showed electrical and non-electrical aids for the deaf; "Acoustique," 95, Wigmore-street, London, W., several kinds of aid for the deaf which have proved useful in suitable cases, and the Acoustique stethoscope, specially designed for doctors suffering from deafness. In this connexion may be mentioned an exhibit of the Marconi Wireless Telegraph Co., Marconi House, Strand, London, W.C., the Otophone, an instrument introducing the principle of the Marconi wireless receivers and intended for aiding the deaf in listening to lectures and concerts. It is also useful in suitable cases for medical men and business men, who are deaf, while seeing their patients and clients. An attachment called the Ossiphone conducts the sound through the bony structures, where such assistance in deafness is indicated.—Deaf Appliance Co., Ltd., 58–60, Wigmore-street, London, W., and Paris, demonstrated the use of many appliances for the deaf, both electrical and non-electrical, and W. H. Pettifor, 11, Victoria-street, London, S.W., showed some interesting electrical aids for the deaf.—Hawksley and Sons, 83, Wigmore-street, London, W., had an attractive exhibit of scientific physiological and acoustic instruments.

Gas Light and Coke Co., Horseferry-road, Westminster, S.W., demonstrated the many uses of gas as an illuminating and heating agent.—Hoskins, Sewell, Ltd., Birmingham and London, exhibited hospital beds, bedding, and equipment for sanatorium, maternity, and children's hospitals, and J. Nesbit Evans and Co., Wednesbury, Staffs, hospital and institution beds.

Milk and Milk Foods.

Ambrosia, Ltd., Brighton Chambers, Denman-street, London Bridge, S.E., with their pure Devonshire dried milk products for invalids, nursing mothers, infants, and convalescents, showed specimens of their cocoa and milk, milk chocolate, and milk rusks.—Glaxo, 56, Osnaburgh-street, London, N.W., exhibited Glaxo Standardised Full-cream Dried Milk containing added lactose and approximating closely the composition of average human milk. Glaxo Three-quarter and Half-cream Dried Milks are prepared to assist the medical man in cases where a lower fat percentage is indicated in cases of fat intolerance or for young and delicate children. They also showed a very interesting exhibit of plate cultivations of Glaxo, spray process dried milk, ordinary roller process dried milk, and cow's milk, illustrating the differences in bacterial purity. A series of transparencies showed cause and result of destruction of antiscorbutic vitamin in spray process dried milk, and absence of this in roller process dried milk.—Thew, Hooker, and Gilbey, Ltd., Buckingham, showed their Hooker's malted milk which contains neither starch nor cane sugar; it has previously been favourably reported upon by THE LANCET.—Horlick's Malted Milk Co., Slough, Bucks, had an attractive exhibit of their easily digested and nutritious diet for invalids and convalescents as well as for infants. It can be obtained in the form of tablets.—Prideaux's Pure Casein and Life Food Co., Ltd., 16, Southwark-street, London, S.E., showed milk foods, whey, and milk powders.—West Surrey Central Dairy Co., Ltd., Guildford, Surrey, gave demonstrations of the utility of Cow and Gate Milk Food, in which only the finest Grade A milk is used.—Trufood, Ltd., The Creameries, Wrenbury, Cheshire, and Lever House, Blackfriars, London, E.C., exhibited pure milk products including humanised Trufood, which closely approximates to breast milk for infants from birth to 4 months, Trufood for infants of 4 months and onwards, and Secway, a sweet whey powder.—Food Products, Ltd., 11, Queen Victoria-street, London, E.C., Bovo-Lactin, consisting of animal protein hæmoglobin, milk solids, and carbohydrates, was shown at this stall in the forms of Invalid Bovo-Lactin, Bovo-Lactin Essence, and Bovo-Lactin chocolate and gruel.—Mead Johnson and Co., 40–42, Lexington-street, London, W., displayed their dextrimaltose and other infant diet substances with instructive booklets for its use. The preparations are intended for prescription by medical men only and no feeding directions accompany the trade packages.—Food Education Society, 329, Vauxhall Bridge-road, S.W., showed a large selection of publications in connexion with food, cookery, and health reform.—Cadbury Bros., Bournville, Birmingham, displayed cocoa and chocolate, and Keen, Robinson and Co., Ltd. (incorporated with J. and J. Colman, Ltd., London and Norwich), preparations of mustard and prepared oats.

Spas.

The attractive and instructive exhibit of the British Spa Federation emphasised the fact that within the limits of climate and altitude British watering-places can successfully compete with foreign resorts, while at the same time possessing many distinct advantages. Bath, Harrogate, and Droitwich were included in this section, and the many photographs, booklets, and analytical tables testified to the enterprise of the organisers. The same remarks apply to Torquay, where special treatments are the seaweed baths indicated in muscular and articular rheumatism, and the Dartmoor peat baths and packs. Firms exhibiting natural and other mineral waters included Apollinaris Co., Ltd., 4, Stratford-place, London, W.; Hydrox, Ltd., Trafalgar House, 11, Waterloo-place, London, S.W.; and Ingram and Royle, Ltd., Belvedere-road, London, S.E.

Publishers.

Medical books were shown by Baillière, Tindall and Cox, Henrietta-street, Covent Garden, London, W.C.; William Heinemann (Medical Books), Ltd., 20, Bedford-street, London, W.C.; H. K. Lewis and Co., 140, Gower-street, London, W.C.; and by Stanley Phillips, 48, Brondesbury-road, London, N.W. Messrs. Minty, of Oxford and London, showed a selection of their book-cases.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

National Health Insurance Commission and Medical Certification.

THE National Health Insurance Commissioners have recently issued a circular letter to medical certifiers, in which it is stated that serious complaints have been received from Approved Societies as to the lax manner in which medical certification is being carried out by some certifiers; as the result of inquiries they are satisfied that these complaints are well grounded. This question was discussed at a recent meeting of the Advisory Committee appointed by the Commission under Section 58 of the National Insurance Act, 1911, and it has been decided to set up a Central Complaints Committee, composed of representatives of the medical profession and of approved societies, with a chairman appointed by the Commission from the members of the Advisory Committee. A summary of the facts against any certifier may be placed before the Central Complaints Committee for their observations before any further steps are taken. The types of complaints the Commission contemplate bringing before the Central Complaints Committee will include cases where a certifier: (i.) issues a certificate of incapacity for work in respect of an insured person without a corresponding medical examination; (ii.) improperly issues a certificate of incapacity for work to an insured person who is not in fact incapacitated; (iii.) issues on the same day in respect of a particular insured person a number of certificates of incapacity for work purporting to have been signed at weekly intervals. Every opportunity will be afforded to the certifier to meet the charge preferred against him. In cases where the Commission are not satisfied it will be open to them: (*a*) to refer the matter to the General Medical Council on a charge of infamous conduct in a professional respect, in accordance with the resolution of the Council dated November, 1911; or (*b*) to terminate forthwith his agreement with them as a certifier; or (*c*) to impose a monetary penalty upon him.

The Commission further draw attention to certain minor changes in the ordinary certificate, and state that they have authorised the issue of a special form of certificate for use in certain cases of prolonged illness.

Royal Academy of Medicine in Ireland.

The annual meeting of the Royal Academy of Medicine in Ireland was held on Oct. 12th, in the Royal College of Surgeons, Dublin, Sir Arthur Chance, President, being in the chair. The annual report stated that the Academy consisted of 173 Fellows, 7 Members, and 36 Student Associates, showing a decrease of four Fellows and one Member, and an increase of 16 Student Associates. Twenty-six sectional meetings were held during the session, with a gross attendance of 949, as compared with 887 in the previous session. Two successful joint meetings of the Sections of Medicine and Surgery were held. During the year Dr. Ernest Hastings Tweedy was admitted publicly to the honorary fellowship of the Academy, and Dr. Oskar Frankl, of Vienna, was admitted *in absentia*. On the same occasion an oration in honour of Louis Pasteur was delivered by Dr. W. R. Fearon. The report recorded with regret the death during the year of two Fellows—Dr. J. M. Finny and Dr. E. C. Hort.

At the election of officers the following were declared elected or re-elected:—President: Sir Arthur Chance. General Secretary and Treasurer: Dr. T. P. C. Kirkpatrick. Secretary for Foreign Correspondence: Dr. L. Cassidy. Presidents of Sections: Medicine, Dr. T. G. Moorhead; Surgery, Sir W. I. de C. Wheeler; Obstetrics, Dr. L. Cassidy; Pathology, Dr. J. T. Wigham; Anatomy and Physiology, Mr. A. A. McConnell; State Medicine, Dr. N. McI. Falkiner.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the principal health statistics for 1922 of four towns, the annual reports of which are commented on below:—

Name of town.	Estimated population (R.G.).	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Infant mortality		Maternal mort. from childbirth.
							Legit.	Illegit.	
Glasgow	1,037,800	27·3	17·2	1·5	1·2	4·4	116	181	7·0
Bradford	291,300	17·9	14·0	1·0	1·4	3·0	83	157	5·7
South Shields ..	122,400	26·6	13·8	1·7	1·0	3·5	92	145	5·5
Paisley	85,350	24·8	16·1	1·3	1·3	4·2	117*		4·7

* Undivided infant mortality rate.

Glasgow.

Dr. A. K. Chalmers reports an increase in comparison with the previous year of 2 in the death-rate and of 15 in the infant mortality rate, both largely due to the increased prevalence of influenza, measles, and diseases of the respiratory system. His tables show that both these rates were markedly higher in the four Scottish towns, Glasgow, Edinburgh, Dundee, and Aberdeen than in the four English towns, London, Liverpool, Manchester, and Birmingham. The average rate of the Scottish group for infant mortality was 113, compared with 88 for the English group. Dr. Chalmers compares the infant mortality rates in Scotland and England since 1860, and shows that during the nineteenth century the Scottish rate was much lower than the English, but that both rates showed no tendency to improve; and that in the twentieth century the English rate has improved much more rapidly than the Scottish, with the result that during the decade 1911–20 the English rate is for the first time lower than the Scottish. He suggests that there has been a greater reduction in England under the heading diarrhœal diseases. Table XXIII. shows the infant mortality rate in Glasgow from 1860 till 1922; it has behaved somewhat differently from both the English and Scottish rates. Thus during the last six decades, from 1863 to 1922, the infant mortality rate in Glasgow was 168, 152, 146, 147, 133, and 120. A chart is given, based on the weighings of a number of infants during each week of the first year of life, which indicates that the infants regularly attending the infant consultations are approximately 1 lb. below the standard curve throughout the year. There was difficulty in obtaining satisfactory charts for subsequent years but, so far as they went, such charts indicated that the average child brought to the centres was 2½ to 4 lb. below the standard for the second, 3 to 6 lb. below for the third, and 5 lb. below for the fourth year of life. During April the scheme for supplying meals to expectant and nursing mothers and children under 5 was discontinued gradually. The meals ceased altogether on June 10th, and milk only was supplied on the certificate of a medical officer for necessitous cases in regular attendance at a centre. At the end of the year, as the result of the reports of medical and nursing staffs, the supply of meals was resumed on the conditions governing the supply of milk. Dr. Chalmers gives particulars of the food value of the dinners supplied, in the hope that a standard may be reached for the organisation of adequate feeding in times of trade depression. A satisfactory feature of the V.D. scheme is the increase in the attendances per case. Dr. Chalmers remarks on the great preponderance of females among

the cases of congenital syphilis. He also states that "each year the Women's Hospital and Baird-street Reception House treat many cases of very young female children suffering from gonorrhœa, the result of criminal assault," and refers to the appalling belief which exists that gonorrhœa may be cured in this way. It is obvious that the penalty provided by the law for this offence is utterly inadequate.

The portion of the report devoted to housing includes a special joint report by the town clerk and medical officer of health, which shows that the corporation have not sufficient control over sites which have been cleared in over-built areas. Plans are given, showing "hollow squares" in which houses used as dwellings have been condemned owing to congestion, and the position has been aggravated by the conversion of the shell of the dwelling-house into business premises of a greater height than the original dwelling-houses and encroaching still more by backward extension on the already scanty open space of the hollow square. Among the examples given of these new buildings which "obstruct" the remaining dwelling-houses in the square more than the original dwelling-houses did, are a six-story warehouse, picture palaces, and a corporation electricity department building.

The Glasgow Corporation are taking prompt steps to secure their share of the grant of £30,000 per annum offered by the Scottish Board of Health in August, 1922, towards the improvement of insanitary areas, and Dr. Chalmers gives particulars of two schemes which will involve the demolition of over 2000 houses and the erection of a similar number in their stead. The consideration of a memorandum on the Glasgow Common Lodging-houses for Women has led the corporation to adopt a new by-law that no girl under the age of 18 shall be admitted to a common lodging-house unless she is to reside there with her mother. Steps are being taken in various ways towards smoke abatement, by the prosecution of owners and drivers of steam wagons, by the use of coke instead of coal for tar-melting, by central heating and the use of up-to-date appliances. Classes are held for the instruction of firemen and others. A chart is given in the report, showing a pictorial representation of the average soot deposit on each square foot of the city area during 1917 and 1922 respectively. The total year's deposit in the city area was 11,608 tons for 1917 and 7224 tons for 1922, but whether the improvement is due to better methods or not can only be determined when more normal industrial conditions return.

Bradford.

The Bradford report makes good reading because it shows that every problem of public health and school administration is being attacked with energy and thoroughness. There are still some sanitary arrears to be caught up, for there are 7609 privies, but 1501 of these were converted to water closets in 1922. There were 22 smoke prosecutions, only one of which was dismissed. Dr. John J. Buchan reports that most of the steam raised is used for process work and there is great fluctuation in the steam requirements in the dyeing and wool-combing industries, so that, the draught arrangements being frequently designed to meet average loads, there is often deficiency of draught and consequent smoke at periods of maximum firing. Experience has shown, too, that there is often as much smoke with modern as with old-fashioned plants, owing to working with too thick fires and mechanically restricted draught, in efforts to obtain greater evaporation and furnace efficiency. There is a tendency also to adopt intermittent heavy firing, by which means the stoker alternates longer periods of hard work and rest. The tuberculosis rate was the lowest ever recorded, and Dr. Buchan shows that the English and Bradford curves during the last ten years have been similar except that the Bradford rise was higher during the war years. A special report made in April, 1923, on "Tuberculosis in insured persons accepted for treatment by the city of Bradford Health Committee" is quoted to show that, provided the disease is diagnosed in the early stages, the outlook for the patients is quite hopeful even when they return to work in the industrial town in which they contracted the disease. Dr. Buchan shows that the Bradford death-rate from cancer has exceeded the English rate during the last ten years, and that the excess has chiefly been in cancer of the upper part of the alimentary tract (excluding the mouth) in males and females, and in cancer of the uterus.

The infant mortality rate showed a remarkable fall in 1922, while the neo-natal rate has displayed a distinct tendency to fall in recent years. A table is given which shows that the fall in infant mortality since 1896 has been quite pronounced even when diarrhœal diseases have been excluded. Thus the average annual infant mortality rate, excluding diarrhœal diseases, for 1913–22 was 104, for 1903–12 was 115, and for 1896–1902 was 142. Midwives attended two-thirds of the births in 1922 and of these births nearly half were attended by the 11 municipal midwives. When an expectant mother is attended by a non-municipal midwife, ante-natal visits are paid by the health visitors and 504 expectant mothers were so visited in 1922. The municipal midwives paid ante-natal visits to the 1614 cases attended by them, so that rather more than 40 per cent. of all the expectant mothers were under ante-natal supervision by these two methods. The available accommodation for maternity cases in Bradford is 20 beds at the Municipal Maternity Hospital, 40 beds at the Municipal General Hospital, and about 6 at St. Monica's Home which is run by a voluntary agency. Many very serious cases of overcrowding came to light during the year but little could be done owing to house shortage. On June 30th, 1923, the applicants for new houses numbered 7046, of whom 4721 were ex-Service men and of these 3434 lived in apartments. The new houses erected during 1922 numbered 466, including 428 municipal houses. The number of back-to-back houses in Bradford is 40,553, of which 31,792 are built in blocks of four and eight.

The school report shows that 171 cases of ringworm of the head received X ray treatment and that the average period between treatment and re-admission to school was 21 days. As in former years there was no case of recurrence or where there was not full re-growth of hair after treatment. The school dentist, Mr. B. North, reports that 27,127 children, including 1256 in the secondary schools, were inspected and 75 per cent. required some treatment, a gratifying reduction as compared with former years. Mr. North has had much experience of the teeth of children in an area supplied with hard water and is of opinion that the soft water of Bradford is not bad for the teeth. Appointments with the dentist have been well kept, except on Saturdays, indicating the influence of the teachers in this direction. Most of the spectacles needed are provided by the Education Committee. During 1922, 1099 spectacles were supplied. In 966 cases the parents paid the full cost, in 56 cases the cost was remitted after inquiry into the family circumstances, and the remaining 77 pairs of spectacles formed part of the treatment provided at the myope school. The camp schools were not reopened during the summer of 1922. The open-air school at Buckwood, which was opened in 1908, has been extended twice and now has accommodation for 190. Three meals a day are provided and the children are taken to and from school by special tram-cars. The site covers 5 acres and there is free access to about 5 acres of woodland in addition. The usual tables show that every effort is made to provide such education as is possible for all the "exceptional" children in the Bradford area.

South Shields.

Speaking of the high death-rate from tuberculosis, Dr. W. Campbell Lyons says: "So long as the appalling overcrowding due to the lamentable shortage of houses continues, so long will there be a high incidence of tuberculosis." Influenza and pneumonia were prevalent in the early months of the year,

and Dr. Lyons thinks the high incidence of acute pulmonary diseases was increased by overcrowding of the houses and lowered resistance owing to unemployment and consequent malnutrition. The number of beds at the Cleadon Park Sanatorium, which was opened in 1921, has been increased to 29. Owing to wretched home conditions and the want of other accommodation for advanced cases, beds have had to be given up to cases for whom no permanent benefit could be expected, to the detriment of cases in a more hopeful stage. The average length of stay in the sanatorium was 115 days. Dr. Lyons points out that the increase in maternal mortality from childbirth is not surprising considering the home conditions, and that a maternity hospital is imperatively needed in the borough.

In the school report the inadequate accommodation at the school clinic is again referred to. Premises were purchased for an open-air school in 1920 but have not yet been adapted for the purpose owing to the economic situation. At the end of the year it was decided to convert 1000 privies into water closets, partly for the relief of unemployment, and Dr. Lyons hopes that once the good work is begun it will go on till all the evils connected with the present system are dealt with and the back streets cease to be breeding places of disease. At the end of the year 353 houses were occupied on the council's housing estate at Cleadon Park and 241 were under construction. During 1922 private enterprise contributed 14 self-contained houses and four houses of flats.

Paisley.

Dr. G. V. T. McMichael reports, as the outstanding event of the year, the generous offer of Miss Russell, of Muirfield, Paisley, to erect and equip a central medical institute for the mothers and children of the town. Two other features of the year's work were the opening in October of the municipal venereal diseases clinic and the decision of the local authority, with the approval of the Scottish Board of Health, to make all forms of pneumonia compulsorily notifiable. In view of present housing conditions, Dr. McMichael is a keen advocate for hospital treatment of pneumonia, and he hopes that the extension of notification will allow more effective treatment to be provided for those fatal types of pneumonia which complicate measles and whooping-cough. Both the general death-rate and the infant mortality rate are the highest recorded for several years, and Dr. McMichael points out that this is due to the increased prevalence of influenza, measles, whooping-cough, and diseases of the respiratory system. No case of pneumonia was refused hospital treatment last year. In commenting on the difference between the death-rates of the larger Scottish burghs and the county districts for 1922—viz., 16·3 and 12·9 respectively, Dr. McMichael expresses the opinion that smoke pollution and the present deplorable housing conditions are the only factors which can explain the difference. In this connexion the following table, given in the report and showing the percentage of the population of the six largest Scottish towns living in houses of from one to three rooms, speaks for itself:—

Town.	One room.	Two rooms.	Three rooms.
Glasgow	12·8	49·8	20·0
Edinburgh	4·7	32·9	22·5
Dundee	8·9	50·8	20·9
Aberdeen	4·4	32·6	31·5
Paisley	12·3	52·3	20·2
Greenock	10·3	48·0	21·1

In another part of the report we read that of the 2118 births, 560 took place in one-roomed houses. Dr. McMichael regrets the decision of the Board of Health to discontinue the 50 per cent. Exchequer grant towards the treatment of measles and whooping-cough in children under 5 years of age, as he considers that expenditure in building up children after such illnesses is far more profitable than the provision of the costlier sanatorium treatment for tuberculosis, which he describes as often futile. Reference is made to the high maternal mortality from childbirth in Scotland—viz., 6·4 in 1921 and 6·6 in 1922, and the high proportion of 96 still-births to 2118 live births in Paisley in 1922. With regard to the latter a careful investigation was made and it was found that the probable cause of 22 of the 96 still-births was "contracted pelvis, followed by instrumental delivery." Dr. McMichael looks to the development of ante-natal treatment as the remedy for this high puerperal mortality and morbidity, for the investigation of which the Scottish Board of Health have recently appointed a departmental committee.

The question of the purification of the River Cart, postponed because of the war, has been taken up again and a small experimental plant is to be laid down for testing the efficacy of the "bio-aeration" method for dealing with the Paisley sewage.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Rear-Admiral Joseph Chambers, the new Director-General of the Medical Department of the Royal Navy, is promoted to Surg. Vice-Admiral.

Surg. Comdr. J. C. G. Reed is placed on Ret. List with rank of Surg. Capt.

ROYAL ARMY MEDICAL CORPS.

Maj. T. J. Wright retires on ret. pay and is granted the rank of Lt.-Col.

Temp. Maj. W. E. Home relinquishes his commn. and retains the rank of Maj.

The undermentioned Capts. retire, receiving a gratuity: W. J. A. Laird (granted the rank of Maj.) and G. H. Wood.

Temp. Capt. J. S. Wilson relinquishes his commn. and retains the rank of Capt.

ARMY RESERVE OF OFFICERS.

Lt.-Col. E. C. Hayes, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

Capt. H. E. S. Stiven, late temp. Capt. R.A.M.C., to be Capt.

ARMY DENTAL CORPS.

Capt. H. J. Pegler, late Spec. List, to be Capt.

TERRITORIAL ARMY.

Majs. A. G. Lovett-Campbell and H. L. Gregory, having attained the age limit, are retd. and retain the rank of Maj., with permission to wear the prescribed uniform.

General Hospitals: Lt.-Col. G. S. A. Ranking, having attained the age limit, is retd. and retains the rank of Lt.-Col.

Capt. W. J. S. Bythell (late R.A.M.C., T.F.) to be Capt.

Supernumerary for service with O.T.C.: Lt. E. J. T. Thompson resigns his commn. and retains the rank of Lt.

TERRITORIAL DECORATIONS.

The King has conferred the Territorial Decoration upon Col. P. B. Giles (ret.), Lt.-Col. F. Darlow, and Majs. H. Henry and J. E. N. Ryan.

ROYAL AIR FORCE.

J. S. Wilson is granted a short service commission as a Flight Lt.

INDIAN MEDICAL SERVICE.

Major T. F. Owens to be Lt.-Col.

UNITED STATES PUBLIC HEALTH SERVICE.—The third general interchange of health officers arranged by the health section of the League of Nations is now taking place in the United States. Representatives from France, England, Italy, Russia, Poland, Spain, Holland, Belgium, Greece, Jugo-Slavia, Germany, Switzerland, Norway, Mexico, San Salvador, Brazil, Chile, and Canada, delegated by their respective governments to participate in a course of study and observation, arrived in America the first week in September and will remain for approximately three months. Until Sept. 22nd the delegates remained in Washington, studying national health organisation as administered by the United States Public Health Service. The delegation then separated into three groups, one going to Virginia, another to North Carolina, and a third to Alabama, to study State and local health departments. Later the groups will study health administration in Boston, New York, and Philadelphia, and will probably reassemble in Washington late in November for a final conference.

Correspondence.

"Audi alteram partem."

CENTENARY OF THE LANCET: CONGRATULATORY MESSAGES.

To the Editor of THE LANCET.

SIR,—I have spent most of my spare time this week in reading, with unwearied interest, the fascinating story of THE LANCET and its hundred years. As a past editor of the *Dublin Journal of Medical Science* for 47 years, may I claim the privilege of associating myself with the many members of the medical profession who have offered you their congratulations in connexion with the Centenary of the famous journal, which has done so much to mould medical opinion, and to advance both curative and preventive medicine throughout the world. For that journal and for you, its Editor, I wish prosperity and ever-growing influence *ad multos annos!*

I am, Sir, yours faithfully,

JOHN W. MOORE, M.D.,
Senior Physician, Meath Hospital and Co. Dublin Infirmary.

To the Editor of THE LANCET.

SIR,—You have received so many congratulatory letters on the completion of the Centenary of THE LANCET from distinguished members of the profession that a belated one from myself can hardly be expected to add to your gratification.

THE LANCET has had a truly wonderful record, and, apart altogether from the splendid work it has done in disseminating medical knowledge throughout the profession, its pages furnish the best record which we possess of the history of British medicine during the last hundred years. May I congratulate you upon the Centenary Number? What a treasure it will be to all lovers of medical history! Personally I shall regard it as one of the most interesting books in my library. I used to possess one volume which I valued above all others, and that was the first volume of THE LANCET. Like myself, my father and my grandfather, who were both country practitioners, took THE LANCET regularly, and I inherited the first ten volumes from the latter. But, alas! I lent the *first* volume to a friend—I don't remember who—some ten or more years ago; unfortunately he omitted to return it, and I have no doubt by this time he has orgotten who lent it to him. On the fly-leaf is a crest representing a wolf's head with the initials T. S. underneath.

With best wishes for THE LANCET's continued usefulness and prosperity,

I am, Sir, yours faithfully,

HAROLD J. STILES,
Regius Professor of Clinical Surgery, University of Edinburgh.

DOUBLE SCHOOL VACCINATION.

To the Editor of THE LANCET.

SIR,—In your leading article last week you note the rise in number of cases of small-pox from 7 in 1917 to 1225 in the first half of 1923, and discuss the best means of preventing and controlling this disease. The prevalence of small-pox during the last three years has drawn public attention to the chaotic condition of our vaccination laws, and to the large percentage of unvaccinated people. The number of cases of small-pox has been increasing in every year, save one, since 1917. Cases have been notified for the first time actually in no less than 12 counties since June 1st. The majority of this year's cases have occurred in the epidemic at Gloucester. It has been stated that these cases are mild ones, and even that they are not genuine small-pox. Anyone who saw the photograph in THE LANCET (July 21st, 1923, p. 132) could not doubt that they were true to type, and the photograph gave a convincing proof also of the efficacy of vaccination. Granted that the cases of small-pox in the Gloucester epidemic were mild, this only emphasises the necessity of insisting upon general vaccination. How often has one seen a mere blush of a rash in one child cause a fatal malignant scarlet fever in a contact. Compulsory notification of chicken-pox in times of small-pox prevalence, and in fact at normal times, is good, but it will be as ineffectual as the control of measles by notification if no action is taken. A routine procedure with chicken-pox notification, introduced by Dr. Joseph Priestley, M.O.H., Lambeth, S.W., is to offer vaccination to all cases and contacts, thus ensuring protection in the event of mistaken diagnosis. The use of carbolic oil during the scaling off of the pustules is another helpful measure. In 1922 there were 780,000 births in England and Wales, and 357,920 declarations of conscientious objection to vaccination. This is an appalling figure, and in some respects is not to be wondered at when it is known that even amongst medical men there is doubt, if not as to the efficacy of vaccination, then certainly as to the advisability of infant vaccination.

It is difficult to understand how medical men can be sceptical of the value of vaccination. Three cases recently reported from the Doncaster district under Dr. Arthur Briggs Dunne, the medical officer of health, are very convincing:—

1. In one house where a case occurred there were 10 unvaccinated contacts, eight being children, and nine of these were vaccinated after the case went to hospital; one of the children, the youngest, remaining unvaccinated. This child was the only one to contract the disease.
2. In another house two families were living in an overcrowded condition, and a case of small-pox occurred. Every member of this household was vaccinated within one hour of the patient being removed. Despite the overcrowding no other case occurred.
3. On the other hand, in a house containing eight contacts of a patient where vaccination was refused, five cases occurred, one after the other, until at last the father consented to have the remaining two children vaccinated.

The number of vaccinated persons varies considerably throughout the country. The percentage of children vaccinated in the following cities, for instance, is: Liverpool, 75; Manchester, 50; Sheffield, 43; and Leicester, 5. Dr. Killick Millard, the medical officer of health for Leicester, does not, I understand, recommend the routine compulsory vaccination of infants, but allows that general vaccination should be adopted in the event of the appearance of small-pox in a district. The figures seem to indicate in a striking manner the influence of the policy of the chief administrator in the public health service of any city or area. The trend of opinion, medical and lay, seems to be against infant vaccination. A resolution asking the Government to repeal the conscientious objection clause of the Vaccination Act was defeated recently by 14 votes to 11 at Hackney, London, E., Board of Guardians. There is no question that the inoculation of an infant with calf lymph does in many instances seriously disturb its metabolism. Popular objections are based on the undoubted suffering and illness, sometimes fatal, resulting from infant vaccination.

I consider that a compromise between the extreme pro- and anti-vaccinationists can be found in school vaccination. Probably the rigid old vaccination laws have done harm, but such harm is reparable. Anathematising by doctors of all people who will not submit their infants to vaccination can have but one result—namely, to make them more obstinate. Thus the scientific treatment of diseases like diphtheria and whooping-cough does suffer. The secret of the success of the public health service is a policy of educative tact and persuasion; thus and only thus can school vaccination and infant vaccination likewise be successful.

I submit that:—

(1) Every child should be vaccinated during its first and last years of school life, normally at ages 5 and 14.

(2) This work should be done by the school medical inspectors and nurses. The clinics and organisation are ready now for the emergency. An order from the Ministry of Health would set efficient machinery working quietly throughout the country.

A school medical inspector responsible for, say, 8000 children in 60 schools in an urban area, and proportionately more or less in a borough or county area, could vaccinate all the children twice in their school life. The risk of the probably unprotected three to five years of a child's life is compensated for by the mere thorough double school vaccination, and the absence of the possibility of injuring the health of the child by infant vaccination. The demand for school vaccination is making itself evident. During 1922, 25,313 children were vaccinated in the London County Council schools with the consent of their parents. I understand that the Oxfordshire Education Committee has recommended the Board of Education to consider steps to make vaccination obligatory upon all children to be admitted to or in attendance at a public elementary school or aided secondary school. Worcestershire and Derbyshire County Councils (*Public Health*, August, 1923) have made similar representations to the Ministry of Health. Mr. Neville Chamberlain, the late Minister of Health, said in Parliament that the responsibility for the administration of the Vaccination Act rested with the boards of guardians and their vaccination officers. He was not satisfied that the Act was being properly administered in all districts, and he was considering what steps could be taken to secure an improvement in that respect.

There has long been a feeling that vaccination could be more efficiently administered by its transfer from the Poor-law to the Public Health Medical Service. There have been 92 deaths from small-pox in Great Britain in the five years 1918–1922, and 48,107 in the period 1868–1872. There is no question that improved sanitation has had much to do with this reduction. That is all the greater reason why public health officials' hands should be strengthened. Sanitation cannot conquer an epidemic once it is raging. A step towards efficiency would be double school vaccination. There need be no more compulsion about it than there is in the present popular medical inspection and treatment of school children. It is gratifying that such a world-wide authority on vaccination as Dr. McVail should take the broad-minded view he does regarding the sincere objector to vaccination. Education in hygiene makes compulsion a thing of the past.—I am, Sir, yours faithfully,

S. NICOL GALBRAITH, M.B., D.P.H.

Tonbridge, Kent, Oct. 15th, 1923.

CONGENITAL MIOSIS.

To the Editor of THE LANCET.

SIR,—Concerning the three cases of congenital miosis published in my article Congenital Miosis or Pinhole Pupils Owing to Developmental Faults of the Dilator Muscle,[1] I see the following phrase in THE LANCET (Sept. 22nd, 1923, p. 614): "The anatomical explanation of the condition was pronounced to be the defective development of the dilator muscular fibres of the iris. As to this it might be objected that the dilator muscle of the iris is normally so slight in development that for many years its existence was doubted."

This doubt might be justified before the good technical methods for depigmentation of the iridial pigmentum epithelium were introduced by Alfieri in 1898; later came the hydrogenium dioxyd method. To-day anatomists would not agree with the quoted passage, finding the dilator muscle well developed from the pupillary margin to the ciliary border. This was the experience of my collaborator, O. Berner, examining the iris in 12 normal persons of different ages between 17 and 65. Only in some small spots—few and far between—the front epithelium cells are not transformed into muscular cells (v. Szily). In our two cases of congenital miosis, anatomically examined, the dilator did not exist in the periphery of the iris and was nearly absent in the intermediary part in one of them; in other words, the dilator had no peripheral anchorage. Thus the congenital miosis is well explained; the sphincter pupillæ had no functional antagonist. I tried in vain to detect a certain case of congenital miosis in the pedigree. The father was the only possible exception, but he did not allow the application of mydriatics (homatropin), which is necessary for a sure diagnosis The father's pupils were not 2·5 mm. in diameter, but "between 1·5 and 2 mm.," as I wrote in my article. Congenital pinhole pupils have been mistaken for spinal miosis. In the latter condition the pupil is seldom less than 2 mm. in diameter; in the former, as a rule, between 0·5 and 1 mm.

I am, Sir, yours faithfully,

Christiania, Norway, Oct. 8th, 1923. S. HOLTH.

[1] British Journal of Ophthalmology, September, 1923, pp. 401–419.

THE DIATHERMY TREATMENT OF GONORRHŒA IN WOMEN.

To the Editor of THE LANCET.

SIR,—It is very pleasing to find that others are working at the treatment of gonorrhœal infections by using diathermy currents.

It is noticeable that the methods employed by Drs. Milner and Maclachlan differ from those we have used (see THE LANCET, Sept. 29th, 1923, p. 652). As a comparison of methods and results is likely to lead to improvement of technique this is advantageous. At St. Bartholomew's Hospital the treatment of gonorrhœa by diathermy currents has been carried on continuously since 1919, when it was recommenced after a lapse of time due to the war. It is a continuation of the work done by Dr. E. P. Cumberbatch from 1912 to 1914. A notice appears in his book on Diathermy, published in 1921, of what had up to that time been done. An account of technique and result was put before the Royal Society of Medicine by me in January, 1922.

There is one comment I should like to make if I may be allowed to do so. Our methods differ fundamentally in one particular—viz., in the means adopted to arrive at the dosage of current for the cervix. The authors of the article referred to state that "no diathermy electrode should be introduced into the urethra on any account." It is impossible to work with reliance on the readings of thermometers, although we have used special thermometer-electrodes to check results in regard to the temperatures obtained. The cervix being insensitive, how, then, are we to obtain the required dosage for it? During the last four years it has been my custom to introduce into the female urethra a metal electrode and by this means to apply the diathermy current. I have never known a burn of the urethra to occur. It is hardly to be conceived that without an anæsthetic a patient would allow a sufficient temperature to be reached to cause a burn. The sensation of heat changes to one of pain at about 115° F., but this is a long way from the temperature required to cause coagulation or even enough damage to blister. The urethra is no more liable to damage from heat than other structures. It is, in fact, less liable to be damaged than the skin on account of its smaller resistance. I have always used the female urethra to provide the index of the amount of current required for the treatment of the insensitive cervix. Thus in the urethra if 1 ampère is required to reach the point where the sensation of heat changes to one of pain, that is to say, just short of 115° F. with 1½ in. of sound introduced, ·5 ampère passed through ¾ in. introduced into the cervix produces the same temperature. This I have found many times to be correct.

If, as sometimes happens, 2 or 3 in. of electrode pass through the cervix into the uterus a corresponding amount of current must be passed.

To record the temperature in the cervix a special thermometer-electrode must be used. It cannot be done by stopping the treatment and then taking the temperature, as the loss of heat is too rapid. In the early days we had some slight burns but no harm has ever resulted. A burn of the cervix is no reason for stopping the treatment if care is taken not to superadd the effects of another burn.

We have been very interested in Drs. Milner and Maclachlan's results and are gratified that their results go to confirm our own.

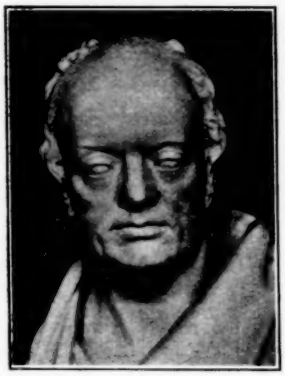
I am, Sir, yours faithfully,

Oct. 10th, 1923. C. A. ROBINSON.

AN UNIDENTIFIED PORTRAIT BUST.

To the Editor of THE LANCET.

SIR,—The accompanying photograph is of a bust in the museum of the Middlesex Hospital Medical School. We have made great efforts to find out who the bust represents, but we have never been able to do so. Possibly some reader of THE LANCET might be able to help us in identification. It has probably been in the medical school about 80 years. Inscribed on the back of the bust is the following:—



"Joseph Deare, Sculpt., Published 1832, London."

I am, Sir, yours faithfully,

A. E. WEBB-JOHNSON,
Dean of the Middlesex Hospital Medical School.

Oct. 13th, 1923.

HEARTBURN.

To the Editor of THE LANCET.

SIR,—Although physiological experiment and accessory clinical methods have done much to advance our understanding of symptoms and their mode of production, there are still many subjective manifestations of ill-health for which no adequate explanation is forthcoming, and of which the treatment in consequence remains unsatisfactory. "Heartburn" is such a symptom. Probably most people experience it at some time in their lives; with others it is a frequent and distressing complaint. Apparently it may occur either in the presence or absence of an organic lesion; it may occur with or without other digestive symptoms; it may accompany the physiological disturbances of pregnancy in women who are never troubled with it at other times; radiography and chemical methods have failed to throw any conclusive light upon it; it is met with, I believe, in persons with achlorhydria as well as in persons with hyperchlorhydria; alkalies give relief, but this does not necessarily signify that abnormal acidity is a factor; it cannot be produced with solutions of hydrochloric acid; whether the organic acids found in the stomach can produce it I do not yet know; it is even disputed whether it expresses a mechanical or a chemical irregularity; and finally there is no absolute agreement as to what the symptom is, different persons employing the term to describe different sensations, or confusing "heartburn" with other gastro-œsophageal discomforts. "Acidity" and "cardialgia" are used as alternative descriptions. "Pyrosis," however, which should be synonymous, is employed to describe "water-brash," an entirely different phenomenon.

Obviously before we pursue its causes further we require more clinical information about the symptom itself, and the circumstances connected with it. In perusing Galton's "Enquiries into Human Faculty" recently, I was much struck by the interesting and sometimes valuable information which the author obtained in regard to certain mental phenomena by the process of circulating his inquiries to men and women of intelligence in scientific circles and to others likely to prove reliable observers. It occurred to me that it might be possible to accumulate useful information in regard to some of the commoner subjective symptoms by similarly circularising to medical men a questionnaire, to which those with personal experience might themselves provide the answers, while others gleaned them from their more intelligent and trustworthy patients.

If such a method should appeal to any readers of THE LANCET I would suggest that an attempt to secure answers to the appended questions be made, and would ask for the information to be forwarded to me at Guy's Hospital. Replies would, of course, be fully acknowledged, and names and addresses treated confidentially. A favourable response might serve not only to direct and stimulate further inquiry of an experimental kind, but also to pave the way for similar inquiries into allied problems of symptomatology. In addition, it would afford to colleagues in general practice an opportunity of coöperating in a piece of practical clinical research for which their observations would provide the basic material.

Questions Relating to "Heartburn."

1. What is the nature or character of the symptom?
2. How long have you been familiar with it?
3. At what vertical level or levels is it experienced?
4. At what depth from the body surface and over what surface area does it seem to be felt?
5. What is the maximum, minimum, and mean duration of the symptom?
6. What factors, if any, seem to initiate or aggravate the symptom?
7. Under what natural conditions does relief occur?
8. What artificial measures (e.g., drugs, &c.) bring relief?
9. What is the momentary effect on the symptom of swallowing: (*a*) Nothing; (*b*) hot fluids; (*c*) cold fluids; and (*d*) solids?
10. What associated symptoms have you noticed (e.g., flatulence, nausea, vomiting, salivation, gastric pain, regurgitation of food, bile, acid or bitter juice)?
11. Has a diagnosis of any organic disease ever been made or suggested in your case, and if so, on what evidence?
12. Have you been investigated by X rays with the opaque meal or by a test-meal, and if so, with what result?

I enclose my card, and am, Sir,

Yours faithfully,

SECRETARY OF THE HEARTBURN INVESTIGATION COMMITTEE, GUY'S HOSPITAL.

Oct. 9th, 1923.

INTESTINAL DISINFECTION.

To the Editor of THE LANCET.

SIR,—My attention has been called to the following statement made by Prof. Dixon of Cambridge, before the Pharmaceutical Society, as published in THE LANCET of Oct. 13th (p. 846): "Disintectants have so far been ineffectual to diminish materially the intestinal flora—they poison the body before the bacteria." THE LANCET, in a laboratory report on April 9th, 1921, stated the claims of dimol, adding: "It is possible to destroy all bacteria in the fluid contents of the intestinal tract with a duodenal douche of dimol." If Prof. Dixon would care to have particulars of the method by which these results are obtained, he will find them in a brochure entitled "Colonic and Duodenal Lavage, with a Suggested Improvement in the Plombières Treatment" (London: H. K. Lewis and Co., Ltd.).

I am, Sir, yours faithfully,

J. T. AINSLIE WALKER.

Ludgate-hill, London, Oct. 13th, 1923.

Obituary.

SIR WILLIAM RICE EDWARDS, K.C.B., K.C.I.E., C.M.G., M.D. DURH., HON. F.R.C.S. EDIN., M.R.C.S. ENG.,

LATE DIRECTOR-GENERAL, I.M.S.

Major-General Sir William Rice Edwards, who retired from the Director-Generalship of the I.M.S. only a few weeks ago, died in London on Oct. 13th from pneumonia at the age of 61. He was the son of the late Canon H. P. Edwards, of Llandaff, and received his early education at Magdalen College School and Clifton. After studying medicine at the London Hospital, he obtained the M.R.C.S. Eng. in 1884 and graduated M.B. with honours at Durham University in the same year, proceeding to the M.D. degree two years later, when he entered the Indian Medical Service. He served on Lord Roberts's staff for four years and afterwards was surgeon to the Eden Hospital, Calcutta, and civil surgeon at Quetta, but during the South African War he rejoined Lord Roberts's staff as surgeon at headquarters. For his services he was mentioned in despatches, awarded the C.M.G., and received the Queen's medal with five clasps. In 1901 he was appointed superintending surgeon of the Kashmir State Hospitals, a post which he held for some ten years, and became subsequently chief medical officer of the North-West Provinces and Surgeon-General of Bengal. In 1917 Sir William Rice Edwards was appointed honorary surgeon to the King, and in the following year became Director-General of the Indian Medical Service. He received the K.C.I.E. in 1921. As a member of the Council of State of India, as a soldier, and as a doctor he was held in high esteem, for he was a careful and efficient administrator. His death at a comparatively early age is also a loss to international medicine, for on his retirement from the Director-Generalship of the Indian Medical Service he was appointed representative of the Government of India on the Permanent Committee of the International Bureau of Public Health.

MICHAEL THOMAS SADLER, M.D. LOND.

A DISTINGUISHED physician of an older generation has passed away in Dr. Michael Thomas Sadler, who died at Rugby on Oct. 11th in his ninetieth year. Dr. Sadler had practised medicine in Barnsley, Yorks, for 44 years. Born in 1834, he received his early education at Wesley College, Sheffield, and in 1853 graduated B.A. at London University. Four years later he passed his M.B. with honours, and in 1861 he obtained his M.D. London. His medical studies were pursued at Edinburgh University and at St. Bartholomew's Hospital, and he was a pupil at Barnsley of his own father, to whom Sir Thomas Spencer Wells was apprenticed. For many years he held the post of medical officer of health for the borough of Barnsley and the surrounding district. He held an appointment on the staff of the Beckett Hospital as physician, and had an extensive consulting practice in the West Riding. During his years of practice in Yorkshire he was a patient advocate of improvements in secondary education, and was deeply interested in public hygiene. After his retirement he gave much of his leisure to the work of the Charity Organisation Society. In 1860 he married Annie Eliza, daughter of John Adams, of Torrington, Lincolnshire. His great-uncle was Michael Thomas Sadler, of Leeds, Member of Parliament for Newark, social reformer and political economist.

In appreciation of Dr. Sadler, Dr. A. Maude writes:—

I was house physician at Barnsley to Dr. Sadler in 1885, and 40 years have not changed my opinion that he was one of the best physicians I ever worked under, or with. He was not merely a sound and careful practitioner, of large experience, but he was a great scholar of medicine. I had come to him fresh from two house physicians' posts and one house surgeon's, at hospitals in London, and Sadler taught me more medicine than any of my previous chiefs. Widely read as he was in French and German, as well as English, he was avid of new information. He would come to me in the morning and ask me to prepare by night a summary of all the literature I could find on some point bearing on some case in his private practice; and as we had a good library at the hospital, as well as his own collection of books, the task was exacting. But his digest of the material furnished was so illuminating that the labour was most profitable. Dr. Sadler also acted as gynæcologist to the hospital and was an admirable operator, taking great pains to adapt his technique to the changes required for aseptic work. I well remember his first ovariotomy at which I assisted, a case full of operative difficulties, which he met with minute care. He was a man of wide and careful reading in general letters, history, and philosophy, assiduous, within the limits of his leisure, on foreign travel, and his house was a valued centre of culture and hospitality.

Dr. Sadler leaves two sons and three daughters. His eldest son is Sir Michael Sadler, Master of University College, Oxford, and his second son Dr. F. J. Sadler, who carries on the family practice at Barnsley.

Medical News.

UNIVERSITY OF OXFORD.—The degree days in the present term are the following: Nov. 1st, 17th, and 29th, and Dec. 15th.

UNIVERSITY OF CAMBRIDGE.—At examinations held recently the following candidates were successful:—

SECOND EXAMINATION FOR MEDICAL AND SURGICAL DEGREES.

Part III., Pharmacology and General Pathology.—G. M. Addison, B. W. Alexander, H. M. Anstey, D. Aserman, G. H. Barendt, G. J. O. Bridgeman, C. F. Brockington, H. J. Burrows, R. D. W. Butler, J. W. D. Buttery, G. P. Chandler, R. Childs, A. C. Copley, A. T. Curnow, R. D. Curran, K. E. D. Dauncey, R. K. Debenham, H. V. Dicks, J. V. Dockray, A. G. Eddison, M. Escovar, E. S. Evans, M. G. Fitzgerald, L. Foulds, T. D. W. Fryer, R. Gallimore, S. E. Gawthrop, M. J. Harker, J. A. Hartley, A. S. Hollins, G. G. Holmes, W. G. S. Hopkirk, F. S. Hubbersty, I. A. Jackson, L. R. Janes, A. J. Johnson, C. E. Kellett, L. C. Lancaster, A. H. Lankester, D. F. Lawson, E. W. Lindeck, R. M. B. MacKenna, B. W. S. Mackenzie, W. K. McKinstry, W. S. Maclay, D. J. MacMyn, R. Marnham, R. W. L. May, H. L. Milles, G. C. Milner, J. K. Monro, J. W. Monro, W. J. Montague, J. K. Moore, H. E. Nourse, R. I. Osmaston, F. B. Parsons, L. V. Pearson, J. C. C. Poole, E. A. B. Pritchard, M. G. P. Reed, W. H. G. Reed, L. A. Richardson, M. E. D. Roberts, D. N. Rocyn-Jones, M. A. Rushton, W. A. H. Rushton, E. M. Sargant, H. J. A. Simmons, A. S. Smith, H. Smith, A. W. Spence, J. W. Stork, C. E. Taylor, G. F. Taylor, H. S. Taylor Young, R. S. Tooth, W. E. Underwood, R. Watson, J. G. Wigley, H. L. Wilson, F. G. Winterton, E. J. Worthington, and H. R. Youngman.

UNIVERSITY OF LONDON.—The Semon Lecture entitled the Advancement of Laryngology: A Plea for Adequate Training and Closer Coöperative Action will be given in the Lecture Hall of the Royal Society of Medicine (1, Wimpole-street, W.) by Mr. A. Logan Turner, at 5 P.M. on Nov. 1st.; the chair will be taken by Mr. Charles A. Parker.

UNIVERSITY OF BRISTOL.—Post-graduate demonstrations will be held at Swindon on Oct. 24th, when Mr. H. Chitty will discuss Infantile Paralysis, Ætiology, Stages, and Prevention of Deformities, and at Boscombe on Oct. 26th, when Dr. Walter Swayne will deal with Toxæmia of Pregnancy.

The annual dinner of the University of Bristol Association of Alumni (London branch) will be held on Nov. 9th, at 7.30 for 7.45 P.M., at Pagani's restaurant, 42–48, Great Portland-street, London, W. 1, Lord Haldane presiding. Tickets (8*s.* 6*d.*, exclusive of wines) may be obtained from Dr. E. Casson, Holloway Sanatorium, Virginia Water, Surrey.

UNIVERSITY OF GLASGOW.—The following degrees have been conferred:—

M.D.—With honours: John N. Cruickshank and Douglas M'Alpine (in absentiâ). With commendation: John M'Callum Lang, Alexandrena M. Maclennan, Charles L. Sutherland, and Walter Telfer. Ordinary degree: Kinloch Falconer, Alexander Fraser, and Henry J. Macbride.

M.B., Ch.B.—With honours: Benjamin G. Ives, Duncan L. Pow, and Alexander S. Henderson. With commendation: Andrew Meiklejohn, Janet M'Leod Stewart, Andrew M. Gitvan, Moses Cohen, John M. Henderson, John M'Killop Fleming, Peter Shannon, Monica M. Bateman, James Gibb, Thomas W. Hill, Archibald M'Lellan. Ordinary degree: James H. Adam, James R. B. Alexander, Samuel M. Allan

Conway P. Allen, Isabella D. Anderson, Matthew C. Bain, Margaret A. Barr, Oliver F. Barr, Henry Baxter, John B. Bell, James S. Bizzett, John D. Black, Robert Black, Colin C. Blair, Harold W. Bowyer, Marion C. Boyd, W. Brown, William Brown, William M. Brown, Arthur Browning, Thomas W. Buchan, Ian M. Burdon, Alexander B. Burns, Joseph B. Bushe, Isabella E. Campbell, Patrick A. Carrie, Evelyn L. Caskey, David L. Charters, Isobel M. Chisholm, Gilbert Cochrane, Samuel R. Costley, William Craig, George M. Currie, Lucie Leon van Dam, Alexander F. Davidson, Elsie B. Dickinson, James L. Dunlop, Andrew N. Fergus, James Fleming, Anne M. Forrest, James C. Fotheringham, Archibald L. Galbraith, Edward J. M. Gallagher, John E. Geddes, Eric G. Gerstenberg, James M. S. Gilbert, Joseph D. Glaister, Alan D. Gowans, Mary J. L. Gracie, Gerald F. Graham, John W. Graham, Christina Grant, Robert Haddock, Andrew Hamilton, James Hamilton, William H. Hay, David Henderson, James Henderson, Norman P. Henderson, Ernest Holmes, William A. Horne, Jennie C. Hunter, Thomas M. Hunter, Sara Jacobs, Robert J. Jarvie, Douglas P. K. Jockel, Moses Joels, John M'Queen Johnston, James S. Kamester, William Kelm, James A. Kerr, Matthew Laidlaw, James Laurie, Agnes A. Lawson, James C. Lindsay, Flora Livingstone (Mrs. R. N. MacDonald), Alexander Logan, Andrew Logan, Daisy B. M'Bride, Alexandra M. MacCormick, Agnes M'Creadie, Hugh M'Crorie, Archibald W. M'Culloch, Eileen M. M. Macdonald, Isobel C. Macdonald, Samuel R. M'Dougall, Alick M'Glashan, Cecilia M'Guinness, Donald G. S. Mackay, Mary L. M'Kay, Thomas S. M'Kean, Euphemia D. Mackenzie, John C. H. M'Kenzie, Peter L. M'Kinlay, William W. Mackinlay, John M'Laren, Margaret B. M'Lellan, Angus M. Macleod, Catherine M. Macleod, Malcolm Macleod, Neil MacLeod, Nicol C. Macleod, Grace M'Lintock, Margaret J. M'Pherson, May Marshall, Margaret M. U. Martin, Russell D. Martin, Edin E. Miller, David M. Mitchell, James J. Mitchell, Marjorie H. Mitchell, George Montgomery, Aaron Morrick, Leah Morris, James G. Munro, Murdo Murchison, Thomas J. Murray, Reuben Naftalin, Gertrude M. Neale, Thomas C. H. Nell, Joseph Ordansky, Matthew Orr, George A. Pollock, Thomas G. Rankine, Lawrence Reid, Margaret G. Reid, Annabella Rennie, James Rennie, Stuart Revels, Kathleen M. Riddle, Hugh Rinn, David Robertson, Walter M. Robertson, Florence M. Robinson, Alice Rosenblatt, Alexander W. Ross, Alexander Russell, Georgina Russell, John M. Sclater, Archibald C. Scott, Stephen C. Scouller, Norman S. Setten, William C. Sharp, Herbert J. Sheppard, Arthur Sheridan, James S. I. Skottowe, Charles C. I. Slorach, Robert M'Dougall Smellie, Elizabeth C. Smith, Mary S. Smith, Olive M. Somerville, Samuel M. Steel, Enid G. Stevenson, Lennox Stevenson, Mary Y. M'Arthur Stevenson, William L. Stewart, Margaret E. Stobo, Albert J. Struthers, Gavin Struthers, Nora Surtees, Alexander Sutherland, William D. Sutherland, William S. Syme, Annie V. Taylor, William M. P. Taylor, Thomas Tennent, Donald F. S. Thomson, James M. Thomson, John M. Thomson, Mark L. M. Thomson, Ann W. Turnbull, Alexander R. Waddell, John Walker, Robert Walker, Henry C. Wallace, James A. Waterman, John N. Watson, William H. Watson, William T. Westwood, John Wilkie, Anne C. Wilson, Harry E. C. Wilson, William B. Wilson, John Wingate, Margaret E. Wylie, James S. Young, and Jean L. Young.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on Oct. 1st, the following were admitted, after examination, as Fellows:—

Margaret Hogg Grant, John Aitken Gilfillan, Alexander Reginald Lester, Colin William McRury, and Manuel Joseph Saldanha.

A bronze medal, specially struck in commemoration of the octo-centenary of St. Bartholomew's Hospital, has been presented to the Faculty by Dr. Alexander Macphail. The medal has on one side the head of Rahere, the founder of the hospital, and on the other William Harvey.

UNIVERSITY OF ST. ANDREWS.—At recent examinations the following candidates passed in the subjects indicated:—

THIRD PROFESSIONAL EXAMINATION FOR M.B., CH.B. DEGREES.

Materia Medica.—Alexander P. R. Borrowman, Barbara T. Cubitt, David C. Dickson, Davina M. Dingwall, Henry A. Graham, Janet L. M. Inglis, Crawford A. Lindsay, May A. Low, Janet E. Luke, Roberta G. McRae, Joseph H. Malloy, Mary E. Proudfoot, Renee Ritchie, Eric H. T. Rutherford, Raphael P. J. Rutherford, Bhavani Shanker, Jean R. Sheriffs, Robert W. Small, Jean J. Smith, Neil I. Smith, Karam Chand Virmani, and David D. Watson.

FOURTH PROFESSIONAL EXAMINATION FOR M.B., CH.B. DEGREES.

Medicine.—Andrew A. Finnigan, Jessie H. Fitchet, Alexander Henderson, James A. G. Keddie, Gordon D. Laing, Victoria R. L. Leslie, Ena M. Liddell, Francis McLagan, James R. Miller, Jermina M. Morrison, John R. Murray, Noel Nelson, Peter C. Robertson, Janet O. Stephen, and Gertrude J. Sturrock.

Surgery.—Colin R. Baxter, Thomas F. Black, Ellen Douglas, John R. Graham, Gordon D. Laing, Jeannie P. Laird, Victoria R. L. Leslie, Francis McLagan, John R. Murray, Peter C. Robertson, and Gertrude J. Sturrock.

Midwifery.—Monawar Khan Afridi, Colin R. Baxter, Thomas F. Black, Norman T. Brown, William F. Dorward, Lewis Farrell, Andrew A. Finnigan, Alexander Henderson, Lilian A. M. Johnston, Lutfur Rehman Khan, Gordon D. Laing, Jean R. Mason, James R. Miller, Noel Nelson, Peter C. Robertson, and Jainti Dass Saggar.

THIRD M.B., CH.B. DEGREE EXAMINATION.

Pathology.—Fakherddin El Ahmadi, Janet L. M. Inglis, Surendra Nath Lahiri, Mohan Lal, Rose M. B. Lee, Sydney C. McPherson, Ajudhia Nath Nanda, Robert Rutherford, Bhavani Shanker, Jean J. Smith, Neil I. Smith, and Karam Chand Virmani.

FIRST D.P.H. EXAMINATION.

Physics and Meteorology.—Frances Heron-Watson and James Lamberton.

FINAL L.D.S. EXAMINATION.

Dental Bacteriology and Operative Dental Surgery.—James T. Crighton.

Dental Surgery and Pathology.—James T. Crighton, John M. Laburn, and James Lindsay.

Surgery.—Alexander A. Galloway.

UNIVERSITY OF MANCHESTER.—The annual dinner for past and present students of the Medical School will be held at the Grand Hotel, Aytoun-street, on Nov. 8th, at 7.30 P.M. Tickets, price 15*s.* 6*d.*, may be obtained from the hon. secretary of the Dinner Committee at the Medical School.

TUBERCULOSIS SOCIETY.—A meeting will be held to-day, Friday, Oct. 19th, at 8 P.M., at the Margaret-street Hospital for Consumption, Margaret-street, London, W., when Dr. J. H. Sequeira will read a paper on Cutaneous Tuberculosis, illustrated by lantern slides.

HUNTERIAN SOCIETY.—The first dinner meeting will be held at Simpson's Restaurant, 2 and 3, Bird-in-Hand-court, 77 Poultry, Cheapside, on Oct. 22nd, at 7.30 P.M. (Price 3*s.* 6*d.* excluding wines.) After dinner, at 8.30 P.M., the presidential address on the Pitfalls of Medical Practice, will be delivered by Sir Bruce Bruce-Porter.

SCIENTIFIC AND INDUSTRIAL RESEARCH.—The report of the Committee of the Privy Council for Scientific and Industrial Research for the year 1922–23 has now been issued. The contents of the volume comprise the report of the committee, the report of the advisory council, a summary of the work of the research boards and committees of the department, and numerous appendices. The report (price 4*s.*) may be obtained in London at H.M. Stationery Office, at Imperial House, Kingsway, W.C. 2, or 28, Abingdon-street, S.W. 1.

EVOLUTION IN RELATION TO CHRISTIAN PRINCIPLES. A Medical Prayer Union meeting will be held, by invitation of Dr. Mary Scharlieb, at 149, Harley-street, London, W., on Oct. 25th, when an address will be given by Mr. A. Rendle Short on Evolution in Relation to Christian Principles. Those intending to be present should inform the hon. secretary, Dr. Tom Jays, Livingstone College, Leyton, London, E. 10.

CHADWICK PUBLIC LECTURES.—The following lectures will be delivered before the end of the year. In London: on Oct. 29th, 5.15 P.M., at the Medical Society of London, Chandos-street, Cavendish-square, the Disposal of the Dead, by Dr. C. Killick Millard; on Nov. 9th, 16th, and 23rd, 8 P.M., at the Royal Society of Arts, John-street, Adelphi, Hygiene and Architecture, by Major Harry Barnes; on Dec. 3rd, 8 P.M., at Goldsmiths' College Lecture Hall, New Cross, S.E., Housing Standards—How they can be Raised, by Dr. A. K. Chalmers, who will repeat the lecture on Dec. 5th at Kensington Town Hall. In Bristol, on Dec. 5th, at the University, the Theory and Reasonable Practice in the Disinfection and Disinfecting of Ships, by Dr. W. M. Willoughby. Further particulars of Chadwick lectures may be obtained from the Secretary, Chadwick Trust, 13, Great George-street, Westminster, S.W. 1.

AN INTERNATIONAL CLINIC OF PLASTIC SURGERY.—Arrangements are being made to supply a gap in the facilities for the practice and teaching of plastic surgery. It is proposed that a portion of the existing St. Andrew's Hospital at Dollis Hill should be utilised until funds are available to build another wing to the hospital to be devoted entirely to cases requiring plastic operations. Accommodation will be provided both for paying and free patients, the latter paying maintenance cost only whilst they are in hospital. A clinic will be held at the hospital and post-graduate classes will be arranged. The surgical and lecturing staff include the names of Mr. H. D. Gillies and Mr. T. Pomfret Kilner (Great Britain), Dr. J. Eastman Sheehan and Dr. Ferris N. Smith (America), and Prof. Lemaitre (France), all being well-known workers along this special line.

It is estimated that a sum of about £25,000 will be required. Donations should be made out to "International Clinic of Plastic Surgery," St. Andrew's Hospital, Dollis Hill a/c, London, N., and forwarded to the London Joint City and Midland Bank, 69, Pall Mall, London, S.W. 1, where a special account has been opened.

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.—An extraordinary general meeting of the Council will be held at 2.30 P.M., on Nov. 8th, at 1, Wimpole-street, London, W. 1. Items on the preliminary agenda issued are the definition of the policy of the Council *re* child assault, the provision of literature and publicity material on the subject of character training in its relation to sex control (resolution to follow), and the consideration of a resolution in which coöperation is suggested with the Government of India in helping the formation of an All-India Council for Combating Venereal Diseases.

DURING the last few days two out of the three more important German medical journals have suspended publication. The *Deutsche Medizinische Wochenschrift* and the *Medizinische Klinik* have ceased to appear, while the *Münchener Medizinische Wochenschrift* remains. The *Deutsche Medizinische Wochenschrift* was founded in 1874 by Dr. Pau Börner, and the *Medizinische Klinik*, which is the organ of the Berlin Medical Society and recently incorporated the *Berliner Klinische Wochenschrift*, has been appearing weekly for the past 19 years.

CONFERENCE OF CREMATION AUTHORITIES. — By invitation of the Lord Mayor of Liverpool, the Cremation Society of England will hold a conference at the Town Hall, Liverpool, at 3 P.M. on Oct. 25th, Dr. H. T. Herring in the chair. The following are already settled as subjects for discussion: Cremation Propaganda; the desirability of forming a federation of cremation authorities, by affiliation of each cremation authority with the Cremation Society of England, or otherwise; the issue of certificates during lifetime for subsequent cremation at death; issue of quarterly bulletin to cremation authorities; combined propaganda issued on behalf of the cremation authorities; and future conference arrangements.

REFUGEES IN THE NEAR EAST.—Dr. Fridtjof Nansen (High Commissioner for Refugees of the League of Nations) will speak on the Near East refugee question at the Central Hall, Westminster, on Oct. 24th, at 8.30 P.M. The Duke of Atholl will preside; during the course of the evening Miss Maude Royden will speak, and a specially-prepared film which has just reached this country will be exhibited. The meeting has been organised under the auspices of the All-British Appeal for the Near East, and applications for tickets should be made to the Save the Children Fund, 42, Langham-street, W. 1, or to the Imperial War Relief Fund, General Buildings, W.C. 2. Admission is free, but a limited number of seats are being reserved and applications for these should be accompanied by a remittance of 2*s.* 6*d.*

THE JOURNAL OF SCIENTIFIC INSTRUMENTS.—A new monthly publication dealing with the principles, construction, and use of scientific instruments has been produced by the Institute of Physics, with the coöperation of the National Physical Laboratory. The first number contains the following articles: The Measurement of True Height by Aneroid, by L. N. G. Filon, F.R.S.; Two New Methods of Measuring the Internal Diameters of Transparent Tubes, by J. S. Anderson, D.Sc., and Guy Barr, D.Sc.; On An Improved Temperature Control for the Pulfrich Refractometer, by T. M. Lowry, F.R.S., and R. G. Parker, B.Sc.; a New Relay and its Application to Sustaining Pendulum Vibrations, by H. A. Thomas, M.Sc.; a General-Purpose Recording Drum, by C. V. Boys, F.R.S.; the Chain Balance, by Sir Flinders Petrie, F.R.S.; and a New Recording Kata-Thermometer, by E. H. J. Schuster, D.Sc., besides miscellanea and reviews. The journal will be published on the 15th of each month at 2*s.* 6*d.* a number, and the annual subscription is 30*s.* post free. Copies of the journal may be obtained through any bookseller, or direct from the Institute of Physics, 10, Essex-street, London, W.C. 2.

THE LATE DR. J. R. S. ROBERTSON.—Dr. John Robert Stevenson Robertson, who died in London on Sept. 26th at the age of 64, received his medical education at the University of Edinburgh, graduating M.B., C.M., in 1881. From 1883 to 1888 he served as an army surgeon, being attached to the Guards; he received the Egyptian War Medal and the Khedive's Bronze Star. At the battle of Abu Klea in 1885 Dr. Robertson was in the square beside General F. G. Burnaby, when the latter died of his mortal wound. After retiring from the service, with the rank of colonel, he practised at Southsea, and later gave up professional work and moved to Hayling Island, where he took a great interest in local affairs—for example, in the campaign against mosquitoes, which was there carried out. Dr. Robertson was a keen golf and tennis player. A colleague describes him as "a very pleasant companion, full of good humour, and pleasant stories and reminiscences." Dr. Robertson suffered a great loss during the war in the death on active service of his elder son. His widow and younger son survive him.

MEDICAL GOLFING SOCIETY.—The autumn meeting was held at Rye Golf Club on Oct. 13th and 14th. Much appreciation was expressed of the hospitality and kindness shown to the society by the officials and members of the club. The results of the competitions were as follows:—Canny-Ryall Challenge Cup: H. P. Aubrey, 85−10=75; H. D. Gillies, 74+3=77; H. Wolseley Lewis, 85−7=78; T. P. Kolesar, 76+3=79. Scratch *v.* Bogey (under handicap): Sir K. Goadby, 2 down; H. Wolesley Lewis, 4 down. The Foursomes *v.* Bogey Competition under handicap ended in a tie between H. A. Richards and W Gilliatt, and W. L. Lamplough and H. D. Gillies.

CHELSEA CLINICAL SOCIETY.—The programme of the twenty-seventh session is as follows:—Oct. 30th: Annual dinner at the Café Royal. Nov. 20th: Discussion on the Treatment of the Failing Heart. Opener: Sir Sydney Russell-Wells. Dec. 18th: The Manipulative Treatment of Joint Diseases. Opener: Mr. Frank Romer. Jan. 15th, 1924: The Treatment of Functional Nervous Disorders. Opener: Dr. S. A. Kinnier Wilson. Feb. 19th: The Treatment of Common Eye Disorders. Opener: Mr. Ernest Clarke. March 18th: The Treatment of Painful Menstrual Disorders. Opener: Dr. T. W. Eden. April 15th: Clinical meeting. May 20th: The Treatment of Non-Venereal Genito-Urinary Diseases. Opener: Sir John Thomson-Walker. Preceded at 8 o'clock by the annual meeting.

NATIONAL MILK CONFERENCE.—A conference to discuss the different aspects of pasteurisation will be held in the Council Chamber of the Guildhall, London, E.C., on Nov. 21st. In the morning Lord Astor will preside. A paper on Methods and Processes of Pasteurisation will be read by Mr. Richard Seligman, and a discussion will be opened by Mr. P. B. Tustin. Physical Changes will be the subject of an address by Mr. A. T. R. Mattick, and Prof. H. R. Kenwood will open the discussion. Dr. S. B. Schryver will deal with Chemical Changes and Mr. G. W. Monier Williams, followed by Captain John Golding, will open the discussion. In the afternoon, Lord Dawson presiding, Prof. J. M. Beattie will read a paper on Bacteriological Changes, followed by Captain S. R. Douglas, F.R.S., Dr. Thomas Orr, and Mr. R. Stenhouse Williams. Prof. F. G. Hopkins, F.R.S., will then deal with Biochemical Changes. Dr. Harriette Chick will open the discussion, followed by Dr. S. S. Zilva and Captain W. E. Elliot. Finally, Financial and Commercial Aspects of Pasteurisation will be discussed by Mr. J. H. Maggs and Mr. G. Cecil Jones. Further particulars can be obtained from Miss H. M. Willans, hon. sec., National Milk Conference, 3, Bedford-square, London, W.C. 1.

Appointments.

MACNAIR, R. A. C., has been appointed Assistant Resident Medical Officer, the Warwickshire King Edward VII. Memorial Sanatorium.

STAMFORD, R. B., F.R.C.S. Edin., L.R.C.P. Lond., to be one of the Medical Referees under the Workmen's Compensation Act for County Court Circuit No. 20; and SPARROW, G., M.B., B.Ch. Camb., F.R.C.S. Edin., for County Court Circuits Nos. 42 and 50.

Certifying Surgeons under the Factory and Workshop Acts: CAUDWELL, F. B. H., M.R.C.S., L.R.C.P. Lond. (Coggeshall); GASKELL, H. S., M.B., Ch.B. Edin. (Stowmarket); and ANDERSON, W. (Polesworth).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne District Infirmary.—H.S. £150.

Bath, Royal United Hospital.—Asst. H.S. £150.

Bermondsey Hospital and Medical Mission, 44, Grange-road, Bermondsey, S.E.—R.M.O. £100.

Bermondsey Parish Infirmary, Lower-road, Rotherhithe, S.E.—Two Jun. Asst. M.O.'s. £400.

Bethlem Hospital, Lambeth-road, S.E.—Two Res. H.P.'s.

Brighton, Royal Sussex County Hospital.—Hon. Surg. Clin. Asst.

Bristol General Hospital.—Two H.P.'s., H.S., &c. Each £125.

Cambridge, Addenbrooke's Hospital.—H.S. £130.

Charing Cross Hospital Medical School.—Pathological Chemist. £500.

City of London Hospital for Diseases of the Heart, Victoria Park, E.—H.P. £125.

Dumfries, Crichton Royal.—Asst. P. £350.

Durham County Council Education Dept.—Asst. School M.O. £600.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—R.M.O. £200. H.S. £125. Radiologist. £100. Phys. for Skin Department.

Evelina Hospital, Southwark, S.E.—Med. Radiographer. £120.

Gloucestershire Royal Infirmary.—Hon. Anæsth. Two Hon. Dental Surgeons.

Hereford County and City Mental Hospital.—Second Asst. M.O. £350.
Hospital for Sick Children, Great Ormond-street, W.C.—Med. Reg. and Pathologist. £300.
Hull and Sculcoates Dispensary.—M.O. £450.
London County Mental Hospital Service.—Seventh Asst. M.O. £432.
Leeds Public Dispensary.—Sen. Res. M.O. £200. Also Hon. Radiologist and Hon. Dent. Surg.
Manchester Royal Infirmary.—H.S., Aural, &c., Dept. £100.
Manchester, St. Mary's Hospitals.—H.S. £50.
Metropolitan Hospital, Kingsland-road, E.—Sen. H.P. and H.S., Jun. H.P., and three Jun. H.S.'s. Each £100.
Nottingham General Dispensary.—Two Res. Surgs. Each £250.
Plaistow Fever Hospital, Samson-street, E.—Sen. Asst. M.O. £430.
Prince of Wales's General Hospital, Tottenham, N.—Hon. Asst. S. to Ear, Nose, and Throat Dept.
Royal National Orthopædic Hospital, 234, Great Portland-street, W.—Clin. Assts. £105.
St. Helens County Borough.—Asst. M.O. £600. Also Asst. M.O.H. £450.
St. Mary's Hospital, Paddington, W.—Med. Supt. £350.
St. Peter's Hospital, Henrietta-street, W.C.—Asst. S.
Sheffield Royal Infirmary.—Ophth. H.S. £100.
Sudan Government Medical Dept.—Med. Inspector. £E.720.
Sunderland Royal Infirmary.—Two H.S.'s. £140.
York County Hospital.—Res. M.O. £150.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Middlesbrough, Yorks (North Riding); Littleport, Cambs; Ellesmere Port, Cheshire.

Births, Marriages, and Deaths.

BIRTHS.

DAVIS.—On Oct. 13th, at Upper Berkeley-street, the wife of K. J. Acton Davis, M.Ch., F.R.C.S., of a daughter.
FURNESS.—On Oct. 11th, at Latham House, Melton Mowbray, the wife of H. S. Furness, M.D., of a daughter.
SPENCER-PAYNE.—On Oct. 9th, at Colney Hatch-lane, Muswell Hill, the wife of A. U. Spencer-Payne, M.R.C.S., L.R.C.P., L.D.S., of a son.

MARRIAGES.

MACDONNELL—QUIGLEY.—At Dublin, on Oct. 10th, by Rev. Fr. John P. White, P.P. (uncle of the bride) assisted by the Very Rev. Canon Casey, P.P., and Very Rev. Canon Pettit, P.P., John Joseph MacDonnell, M.B., M.R.C.S., D.P.H., to Julia, eldest daughter of Mr. and Mrs. T. Quigley.
PATERSON—BLAIKIE.—On Oct. 8th, at Christ Church, Mayfair, Donald Hugh Paterson, M.B., M.R.C.P., to Dorothy Reed, daughter of Mr. and Mrs. G. W. Blaikie, of Toronto, Canada.
UNDERWOOD—GERMAN.—On Oct. 13th, in London, John Ernest Underwood, M.B., B.S., B.Sc., D.P.H., to Katharine German, widow of Richard German, of Ashby-de-la-Zouche.

DEATHS.

CALDECOTT.—On Oct. 14th, at Reigate, Charles Caldecott, M.B., B.S. Lond., aged 62.
EDWARDS.—On Oct. 13th, in London, from pneumonia, Major-General Sir William Rice Edwards, K.C.B., K.C.I.E., C.M.G., late Director-General Indian Medical Service.
MICHIE.—On Oct. 13th, very suddenly, whilst out shooting, Harry Michie, M.B., C.M., of 27, Regent-street, Nottingham.
ROCHE LYNCH.—On Oct. 7th, at Nassau-road, Barnes, Dr. Jordan Roche Lynch, late of Holland Park-avenue, aged 80.
SADLER.—On Oct. 11th, at Horton House, Rugby, Michael Thomas Sadler, M.D., formerly of Barnsley, Yorkshire, in his 90th year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£2	2	0
	Six Months	1	1	0
	Three Months	0	10	6
ABROAD	One Year	2	10	0
	Six Months	1	5	0
	Three Months	0	12	6

Subscriptions not paid in advance are charged out at the published price of 1s. per copy, plus postage. Cheques and P.O.'s (crossed "Westminster Bank, Ltd., Covent Garden Branch") should be made payable to THE MANAGER, THE LANCET Offices, 423, Strand, London, W.C. 2.

ADVERTISEMENT RATES.

Books and Publications .. .. .. } Four Lines
Official and General Announcements .. } and under 6s. 0d.
Trade and Miscellaneous Advertisements }

Every additional line 1s. 6d.

Quarter Page, £3. Half a Page, £6. Entire Page, £12.
Special Terms for Position Pages.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear it if reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Oct. 22nd.

ODONTOLOGY: at 8 P.M.
Presidential Address:
By Mr. Douglas Gabell.
Casual Communications:
Mr. E. B. Dowsett: An Interesting Case of Rarefying Periodontitis.
Mr. H. C. Malleson.

Tuesday, Oct. 23rd.

MEDICINE: at *St. Mary's Hospital, Paddington, W.*
5.15 P.M.—*Introductory Address:*
By the President, Dr. Robert Hutchison.
5.30 P.M.—*Short Papers:*
Prof. F. S. Langmead and Dr. E. C. B. Calvert: Cases of Obesity in Children (Hypopituitarism) with Some Investigations into their Carbohydrate Metabolism.
Dr. C. M. Wilson: Exophthalmic Goitre.
Demonstration: (time permitting)
Dr. A. C. Alport: A New Method of Blood-letting.
Selected cases of interest will also be demonstrated.
Tea will be served at 4.45 P.M.

Wednesday, Oct. 24th.

COMPARATIVE MEDICINE: at 5 P.M.
Introductory Address:
By the President, Sir Clifford Allbutt.
Paper:
Mr. Frederick Hobday: Cryptorchidism in Animals and Man (with illustrations and specimens taken from over 1200 cases).
A discussion will follow, to be opened by Mr. W. McAdam Eccles.

Thursday, Oct. 25th.

UROLOGY: at 8.30 P.M.
Presidential Address:
Dr. Langdon Brown: The Influence of Endocrines on the Work of the Kidney.
To be followed by a discussion.
VICTOR HORSLEY MEMORIAL LECTURE: at 5 P.M.
The First Lecture on the Relations between Surgery and Physiology, will be given by Sir Edward Sharpey Schafer, F.R.S., in the Barnes Hall. The chair will be taken by Sir John Bland-Sutton.

Friday, Oct. 26th.

STUDY OF DISEASE IN CHILDREN: at 5 P.M. (Cases at 4.30 P.M.)
Cases:
Mr. J. P. Lockhart-Mummery: Hemihypertrophy, traced from 5 years of age up to the age of 21.
Other cases will be shown.
EPIDEMIOLOGY AND STATE MEDICINE: at 8 P.M.
Paper:
DR. W. Perceval Yetts: Pestilence and Leechcraft in Ancient China (illustrated with lantern slides).

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. 1.
MONDAY, Oct. 22nd.—8.30 P.M., Clinical evening: Exhibition of Cases and Radiograms.

HUNTERIAN SOCIETY.
MONDAY, Oct. 22nd.—Dinner at Simpson's Restaurant, Cheapside, 7.30 P.M. Presidential Address by Sir H. E. Bruce Bruce-Porter: The Pitfalls of Medical Practice.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY, Oct. 22nd.—10 A.M., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards.
TUESDAY.—10.30 A.M., Dr. Paterson: Medical Wards. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Mr. Tyrrell Gray: Surgical Wards.
WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 11 A.M., Mr. Simson: Gynæcological Demonstration. 3 P.M., Dr. Pernet: Skin Dept.
THURSDAY.—12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. Bishop Harman: Eye Dept. 3 P.M., Dr. Scott Pinchin: Medical Out-patients.
FRIDAY.—12 noon, Mr. Endean: Venereal Diseases. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept. 2 P.M., Mr. Sinclair: Surgical Out-patients.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, Marylebone, W. 1.

Intensive Course in Cardiology. (Conclusion.) Mornings 10 and 11.15 A.M.; afternoons 2 and 3 P.M. Saturday in the forenoon only.

MONDAY, Oct. 22nd.—Dr. B. T. Parsons-Smith: The Electrocardiograph. Dr. F. W. Price: Diseases of the Myocardium. Dr. R. O. Moon: Ward Demonstration. Dr. J. Strickland Goodall: Out-patients.

TUESDAY.—Dr. B. T. Parsons-Smith: The Treatment of Auricular Fibrillation. Dr. R. O. Moon: Congenital Heart Disease. Dr. F. W. Price: Ward Demonstration. Sir S. Russell-Wells: Out-patients.

WEDNESDAY.—Dr. F. W. Price: Diseases of the Arteries. Dr. P. Hamill: Treatment in Heart Disease. Dr. H. B. Weir: Pathological Demonstration. Dr. R. O. Moon: Out-patients.

THURSDAY.—Dr. R. O. Moon: Prognosis in Heart Disease. Dr. J. Strickland Goodall: Aortic Disease. Dr. B. T. Parsons-Smith: Ward Demonstration. Dr. F. W. Price: Out-patients.

FRIDAY.—Dr. J. Strickland Goodall: Blood Pressure and its Significance. Dr. John Parkinson: The Early Symptoms of Heart Failure. Sir S. Russell-Wells: Ward Demonstration. Dr. John Parkinson: Out-patients.

SATURDAY.—Dr. P. Hamill: Ward Demonstration.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: OCTOBER–NOVEMBER, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, Oct. 22nd.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Disorders of Emotional Expression: Dr. Kinnier Wilson.

TUESDAY, Oct. 23rd.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Muscular Atrophies: Dr. Adie.

THURSDAY, Oct. 25th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Cerebral Tumours: Dr. Gordon Holmes.

FRIDAY, Oct. 26th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Labyrinthine Disorders: Mr. Sidney Scott.

COURSE OF LECTURES AND DEMONSTRATIONS ON NEURO-PATHOLOGY.

MONDAY, Oct. 22nd.—12 noon, Cerebro-spinal Fluid Pathology: Dr. J. Godwin Greenfield.

A COURSE of LECTURES on the ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM commenced on Oct. 16th.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

The fee for the Course, including Pathology, is £5 5s. The fee for the Anatomy and Physiology Lectures is £3 3s. If taken in conjunction with the Clinical and Pathological Courses, an inclusive fee of £7 7s. will be charged. Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

C. M. HINDS HOWELL, Dean of Medical School.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

TUESDAY, Oct. 23rd.—5 P.M., Dr. J. H. Sequeira: Tuberculosis of the Skin.

THURSDAY.—Dr. W. K. Sibley: Special Methods of Treatment.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Oct. 25th.—4 P.M., Mr. Higgins: The Treatment of Otorrhœa.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Oct. 23rd.—4.15 P.M., Dr. C. H. Melland: Some Functional Nervous Conditions.

FRIDAY.—4.15 P.M., Dr. F. Craven Moore: The Modern Conception of the Investigation of Dyspepsia.

ANCOATS HOSPITAL.

(Special Course on Surgical Tuberculosis.)

THURSDAY, Oct. 25th.—4.30 P.M., Mr. E. E. Hughes: Abdominal Tuberculosis.

LIVERPOOL UNIVERSITY CLINICAL SCHOOL.

(At 3.30 P.M. each day.)

MONDAY, Oct. 22nd.—(At the Children's Hospital.) Dr. Hubert Armstrong: Clinical.

TUESDAY.—(At the Southern Hospital.) Dr. Johnson: Desseminated Sclerosis.

WEDNESDAY.—(At the Northern Hospital.) Dr. Bigland: Neurological Cases with Special Reference to Neuro-syphilis.

THURSDAY.—(At the Stanley Hospital.) Miss Ivens: Some Causes of Pelvic Infection.

FRIDAY.—(At the Royal Infirmary.) Dr. Hay: Digitalis.

Notes, Comments, and Abstracts.

VILLAGE SETTLEMENTS FOR THE CONSUMPTIVE.

SOME ECONOMIC CONSIDERATIONS OF "TRAINING."

BY P. C. VARRIER-JONES, M.A. CAMB., M.R.C.S., L.R.C.P. LOND.,

AND

THE RIGHT HON. SIR CLIFFORD ALLBUTT, P.C., K.C.B., M.A., LL.D., M.D., F.R.C.P., F.R.S.

INTEREST in the development of the Papworth Village Settlement (so called for the want of a better name) seems unabated; indeed, the number of inquiries, far from becoming less, grows daily in volume. As the principles on which the scheme is founded become more widely and better known, so the advocates become greater in number, and the inquiries of those, whose interest is for the first time aroused, become more incessant. We have from time to time set forth our views on this subject, and in general terms explained, as best we could, the ideas which underlie the colony scheme; but we fear that our explanations have not as yet been sufficiently clear, or our articles, and the book by one of us, have not been read. We have thought, therefore, that some advantage may be gained by a further discussion of the principles which underlie the gradual growth of the village settlement, of how and why the evolution took place, and of the grounds of its success and its immense advantages, not only to the victims of consumption, but also for the safety of those who belong to the healthy world.

It seems that only by reiteration can the truth of a proposition be driven home; if then we go over the ground once again it is not only that we must, but also because it is only by a proper understanding of each step in the advance of the crusade against tuberculosis that success can be obtained. We have lately seen a prospectus in which, for example, it is stated that training is provided for the consumptive ex-soldier in the art of the blacksmith. Let us for a minute examine this proposition. Are we in all seriousness asked to suppose that a tuberculous ex-soldier—i.e., a man who has been discharged from the army with tuberculosis of the lungs caused or aggravated by military service—may, after a period of training, be made into a blacksmith? The armistice took place in November, 1918; the diagnosis of tuberculosis must have been made before that date. When, therefore, after the lapse of three to five years the man is to receive this instruction, there can be no probability of his disease being in an early stage. Whether meanwhile he has received sanatorium treatment or not, work at the open forge is no light job for such a patient, even if the technique of the business could be mastered.

When are we going to bring some common sense to the solution of the problem? It may be said that we have selected a ridiculous example; and, to the credit of the institution, it must be confessed that although it was stated in the prospectus that skilled instructors were available for various trades, including the particular one under consideration, not only had no instructor been appointed, but there was no smithy nor tools for that instruction; which is something to the good.

However, similar statements are made about farming; let the following be an example: "The institution gives instruction in market gardening, including bee-keeping, poultry farming, and pig rearing"—an ambitious programme; yet where is the man, after this training, to find the capital sufficient to establish the business? Then again, "The second course trains men in 'light farming'" (whatever that may mean—the occupation is unknown in the agricultural world), but it confesses that though the dairy side of the farm has to be done by healthy workers, yet "most of the rest of the work, such as hay-making, digging, hoeing, and weeding, can be undertaken by convalescents." What man will get work on a farm if he is to pick and choose his job? What wage is he likely to get for part-time work when the full agricultural wage for a skilled agricultural worker (and he has been "trained") is 25s. a week? The truth is, the light job in the open air is a myth, and its advocates are false prophets.

But what is behind the idea of training a consumptive for a short time and then letting him take his chance in the world at large? A partly trained man—such as, at the end of six months, the patient is—is put to compete with the healthy fully trained worker, whether it be in the factory, or on the land, or in any other occupation where labour has

to conform to the economic law, will find himself utterly outclassed. Playing at a trade is not learning a trade; and ninety-nine out of a hundred of the trainees in these training centres are well aware that the position is an impossible one. In the majority of cases, what was described to us by an official of one of the Ministries as "the blessed state of the infinity of training," fairly sums the matter up. This masquerade is not altogether the patient's fault. If a man sees that the system is obviously wrong, so wrong that the ordinary working man can see its futility, can we blame him if he takes full advantage of "the blessed infinity of training" and goes from one training colony to another, "learning" for six months now this trade and now that, qualifying for a full pension for the following six months, and, when that period comes to an end, making application for, and being sent by another tuberculosis officer to, another colony for a further period of training in some quite different occupation. So far, experience shows that the tuberculous ex-soldier fails to obtain the full advantages proposed to him; he is put off with a worthless scheme.

One has only to make a tour of various institutions—the so-called training colonies—to be convinced that the training given is of little worth to enable the pensioner to "*earn his living once more.*" A temporary benefit certainly accrues from living under proper conditions, and by being given some technical instruction to occupy his time. But to play with a trade is one thing, to learn it sufficiently well to earn a living is another. It is true that to be set to some work is certainly better than the dull monotonous routine of the sanatorium, and in this respect it is a step forward; but let it not be supposed that we are thereby training a man to earn his living. The moral fibre is improved, but the mental, bodily, and manual preparation is insufficient equipment for a livelihood. The whole purpose of treatment of any disease whatsoever is to restore the patient's earning capacity so fully as to enable him to become either self-supporting, or as nearly so as possible. But the course of training usually prescribed, we maintain, is too short to be adequate for this purpose. We are attempting the impossible. Can a man with a disability of varying intensity—hardly ever less than 50 per cent. and too often more—(we are now speaking of the ex-soldier or pensioner) and at the age of 30 or over, learn a new technical trade, whatsoever it may be, so well as to compete with the 100 per cent. man who by long apprenticeship has a full and complete knowledge of that trade? Let us take a definite instance which has come to the notice of one of us. A young clerk in a training colony was asked, "Why did you give up clerking?" He answered that on account of his disability the firm he used to work for would not give him shorter hours; he was expected to work full time, or not be employed at all. This is, of course, only too common. The economic world will not support an unearning unit. A man who is unable to work economically must fall out. Against the hard economic fact our clerk had come up; he availed himself therefore of training in a new occupation for two reasons: (1) That during his training his pension allowances were increased to 100 per cent., and (2) he had free board and lodging. This was certainly an improvement on his pension of 30 per cent., which was the assessment of his disability. He had decided therefore to learn watch-repairing—the prospectus said, "watch-making and repairing"; but a moment's thought will convince anyone that watch-making is now carried on in factories where such an uncertain worker could not hope for a place. Watch-repairing seems at first sight to be a light trade easily taught and easily learned; but talk for a few minutes to an experienced watch and clock repairer and you will hear another story: First, one must recognise the peril of placing a consumptive, probably with others, in a tiny workshop which must be heated, as cold hands cannot manipulate small tools and small parts; secondly, the inexperience of the worker will make his employment utterly unremunerative to the employer. It must be remembered also that the watch and clock repairing trade is largely in the hands of Swiss and other foreign workers, labour which is cheaper and more highly skilled than any that can be turned out of the training centres.

What, then, was this clerk going to do at the end of his training? His answer was, "I am to have a little money when this training is over, and then I shall set up on my own." Where? He did not know. No doubt he pictured to himself a sunny English village, a shop and house already waiting to be occupied (he had not heard of the housing shortage), and populace willing and anxious to send in all their repairs, and a grant for stock-in-trade—a matter of £50 at the outside. Had he any experience of business? None. Had he thought of furnishing his house, or of times of relapse when his business would have to be carried on by an assistant?

When are we going to construct on knowledge a sound appreciation of the patient's medical condition, the bearing this has on his earning capacity, the conditions under which this capacity can be restored, and, finally, the help which is necessary and practicable? The old plausible advice, "Seek a light job in the open air," is on a par with the case above quoted. The same arguments apply, and the same misfortunes follow. The working-class consumptive cannot compete in the open labour market, even at his own trade, much less in a trade of which he has but a superficial knowledge. Are we to believe that a man can be trained in an occupation for six months and then be fit to compete with his fellow-workers in that particular trade, not to mention his restoration to health? Let us inquire of any skilled artisan, or any employer in any trade or profession, and we shall find the answer to be the same every time. In discussing the teaching and training of a city-bred man in farm work for a space of six months or so, we said [1] that the chances of success in such a change of employment were slender; and since then we have had no reason to modify our opinion. We said that "the unskilled hand, the untrained eye, and the inexperienced brain are of little use to the farmer and certainly cannot be profitably employed."

Those who ask us how many men can be trained in agriculture in the course of six months can have no idea of the tuberculosis problem or of its bearing upon the study of economics. "A genuine case of pulmonary tuberculosis, with a definite and progressive lung lesion, will undoubtedly benefit by a prolonged stay under ideal colony conditions; but ultimately very few will be able to stand alone, and, working from morning till night, to live on the produce of a small holding. The arrest of the disease is so imperfect and the conditions so unstable that the proposition cannot be a paying one; from a medical point of view alone, apart from economic and psychological factors, this instability is the main cause of failure, and must necessarily remain so until some method of stabilising the arrest is attained." Again, we said that "even a few months spent in specially fitted up shops at a colony is quite inadequate to qualify a patient to obtain his admission into any skilled trade and into the corresponding trade-union, even should he have at the end of the limited period of training the ability to perform the work." The truth is, the factory or a general workshop is no place for such a man. The pace required is too great; at once, or in a short time, he collapses under the mental, physical, and economic strain.

Now how does this experience compare with that gained by watching those who remain under *settlement* conditions at a village settlement? Here the fundamental factors—viz., the physical, mental, and economic—are materially altered. Let us consider the difference between "training" a tuberculous worker in a trade which it is impossible for him to follow under ordinary commercial conditions, and the "training" of a similar worker to *earn his living* under settlement conditions. The adverse factors which are responsible for the breakdown of the tuberculous worker in the commercial world are under settlement conditions eliminated. The stress and strain, the economic pressure, is reduced to a degree that he can bear. In other words, he is protected from the burden of competition. It is true that the industries of the settlement are run as business concerns—that is, they enable the worker to earn "his living," but the workers in the outside world, beside earning their own living, have to contribute to the interest on the capital for running those industries, and to the costs of management. At Papworth, by experience and experiment, it is found that this contribution is just what a consumptive is unable to make; he is unable to earn enough for large overhead charges and for a dividend for his employer. For these reasons a consumptive cannot be employed in a money-making concern, and we see why all employers "turn down" applications for employment by consumptives. But under suitable conditions the consumptive can and does earn his own living, and earns it fairly well. Is this not then the plan for further progress in the tuberculosis campaign?

The industries of the Papworth Colony are run as several concerns in order to see what happens economically when a consumptive is trained in a new occupation, to prevent confusion of results, and also to obtain a clear picture of the working of each industry, and its adaptability or otherwise to the needs of the consumptive. Moreover, each business is run, as far as possible, on commercial lines, all those features being retained which we are accustomed to look upon as essential to industry, and which the working man more especially regards as essential to his own service; for obviously one of the first questions a "prospective" settler asks himself is, "How far is this industry a going concern?" "Is it likely to pay me the wage to which I think I am entitled?" "Is it carried on in a business-like manner, for if not it will not succeed, and I shall be commercially stranded?" Having satisfied himself on these points, and being assured that the particular industry he selects can pay him a certain wage if he earns it, he next inquires as to the further subsidy which he knows will be necessary in order to secure the maintenance of his health and sufficient means to keep himself and his family. If these conditions

[1] THE LANCET, 1919, ii., 526.

are assured, the man no longer hesitates to throw in his lot with the village settlement.

Surely, then, these are matters for careful thought on the part of those in authority. The workings of the mind of the prospective settler must be studied. One man, it is true, may not give as much time and thought to these questions as another, but on the whole the trend of thought is much the same in each case; and men discuss their conditions with each other. With the right sort of man, the man who will try his best to benefit by the unique opportunity offered him, it is an easy matter to calculate his ability to perform a certain task, the time which he will take to do it, and the fruits of his labour. We have now collected facts and figures to prove that the consumptive can earn a wage sufficient, together with a small subsidy, to provide the necessaries of life for himself and his family. He is no longer to be a drag on the general community; no longer is he to serve as a source of infection either to his family or to his fellows. For the after-care committees he becomes a productive unit. These committees have sometimes, it is true, to deal with a different kind of man.

There is, of course, another type of man, who views the matter from an entirely different standpoint. He has no liking for industry; he tries his best when at home to escape that thraldom, and regards with suspicion the introduction of any such system into a sanatorium, which he supposes to be a place of holiday provided free by the State. He has no desire to "get well," lest his working capacity being restored his pension should be lost. To do a little work when he feels inclined, in his own way, at his own time, and at a job which he fancies, is exactly what he wants. He may not be inherently lazy, but he does not wish to be under any control or fettered by any kind of rules. This is unhappily the feeling which prompts so many ex-Service men to desire training in, e.g., boot-repairing, so that they may return home, set up a small business, and do as they like. These men have one fear, and one only—that is, lest, if they are not very careful, they may lose their pensions. So, again, the request to be set up in a small way of business as a dealer, or as a small shopkeeper, has the same motive behind it, a motive by no means confined to consumptives. The desire to escape from the monotony of industrial life, to live as one chooses or as others may seem to be doing, is an idea firmly fixed in the minds of a large number of ex-soldiers, but happily it is a diminishing one. The great upheaval caused by the war partly accounts for this perversion: the nation as a whole is waking up from similar dreams. Just as we were promised first-class hotels for consumptives, so we were told that immediately after the war a higher standard of living would be provided for all, without too much exertion or effort. We all know the fate of such dreaming. But gradually the economic position has become clearer and, just as the light open-air job promised by countless physicians is an economic failure in so far as the consumptive working man is concerned, so also the notion of a rapid intensive industrial training for the consumptive is a fallacy even more harmful.

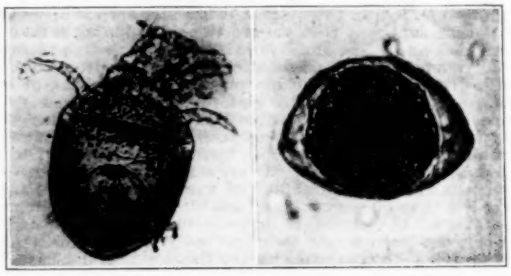
A PLEA FOR A COLLEGE OF ENTOMOLOGY.

IN an interesting article[1] on the Growing Importance of Entomology Dr. H. S. Fremlin points out that to most collectors entomology means collecting butterflies and moths, getting as many species of these as possible, having good series and as many varieties as one is able to obtain. To such a one the Bath White and the Camberwell Beauty are always looked-for prizes, and the mind turns now and then with longing to a Clifton Nonpareil, or a Crimson Speckled Footman; to all the Large Copper is a gem in the collection, even though it must be obtained at a shop. There are other collectors who hunt for beetles, or dragon-flies, or bees, and here and there one who works for grasshoppers or earwigs; but these are few. Yet the real importance of entomology in the world is dependent on the great influence of insects in the vegetable kingdom and on the part insects take in the causation of disease. Insects may carry destruction into the vegetable world, and disease and death into the animal kingdom; this great multitude of butterflies, moths, wasps, flies, grasshoppers, beetles, aphides, mosquitoes, midges, fleas, thrips, lice, and so on, coming into existence every day and rising as a cloud over the earth, these are to be controlled, the friends improved and multiplied, and the enemies hunted out and destroyed. A large amount of good work is being done by entomological societies in training collectors, but Dr. Fremlin deplores the lack of central organisation. Entomology has to be taken up as a hobby, or learned by those who are necessarily brought in contact with insect pests, as gardeners, or as agriculturists. He urges the need of the formation of a College of Entomology, where men are trained in all branches of this subject, where insects and their parasites are investigated, where insect blights of individual species of plants growing in various parts of the world could have the pests and their parasites studied, where arrangements could be made to distribute useful parasites. This central body should, he considers, be linked up with stations in all parts of the world to give advice, examine specimens, and receive reports. Investigations carried out in the tropics on pests or disease-producing insects should be notified, and when necessary experts could be sent out to assist the investigator. Inspectors should also form part of the central staff to assist in training the public by lectures, advice, and practical help. A definite system of training should be required of all who were members of this College. They should have a general knowledge of all orders of insects and make a specialty of one. They should also have a good knowledge of botany, which is essential in connexion with vegetable blights, and of chemistry, so necessary in dealing with insecticides both in their preparation, use, and, where necessary, analysis.

[1] The Entomologist's Record, vol. xxxv., No. 9.

A NEW SKIN GAME.

"ASTONISHING what people *will* carry about with them unawares," said the keeper of the Magic Shop in Mr. H. G. Wells's tale. At the Chilprufe Mills, Leicester, is a department to which wearers of these underclothes may send their worn garments for renovation. In this department Mr. John A. Bolton is conducting an investigation into the causes of the "felting" of underwear and, although he has



Shell of (?) bed-bug. Ovum of Ascaris.

not come across the "little wriggling red demon" of the tale, his investigations have brought to light a sufficiently varied collection of odds and ends. These were revealed by the microscopic examination of the sediment left in the water after the cleansing process, and include such trifles as the shells of bed-bugs, larval fleas, ova of various sorts, more particularly those of Ascaris and *Trichiuris trichiura*, adult ascarides, segments of tapeworms, desmids, and the hyphæ of moulds. The underwear of one child, the only one in the family which felted its woollens, was found to contain numerous granules of starch; an injudicious use of dusting powder at once presents itself to the mind, but it is possibly significant that the father of this child died of diabetes. One is reminded of the late Sir William Osler's tale of the ailing child of wealthy parents; it was before the days of vitamins and a numerous flock of consultants stood baffled around the puling infant. At last an aged practitioner took the child's napkin, extracted it with water, and applied the guaiacum test. The test was positive and scurvy stood revealed. Modern medicine stands in little danger of forgetting that the body is the garment of the soul (or "ego" if preferred); an eye to the garments of the body may help occasionally.

A DOUBLE ACROSTIC.

THE following double acrostic appeared in the *Observer* of Oct. 14th. Its quotation here gives away the "uprights," but presumably the time for sending in the solution has expired.

A Paper and its Founder
A hundred years ago:
No reading could be sounder
For any medico.

1. No exit this: but there's no doubt
It is a way of getting out.
2. Although she downward glances cast,
Undoubtedly the girl was fast.
3. A friend in need I'm often found
When you are on your daily round.
4. 'Tis pink or red; but if it lack
Its heart, you can't deny it's black.
5. Upright judges by the dozen
Wear the coat of the weasel's cousin.
6. "His diet was of wheaten bread,
And milk and oats and straw,
Thistles, or lettuces instead,
With sand to scour his maw."